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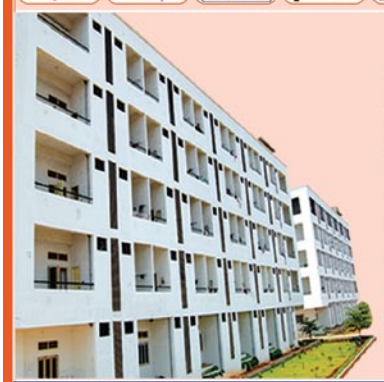

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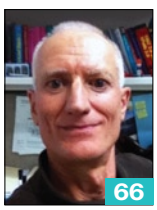

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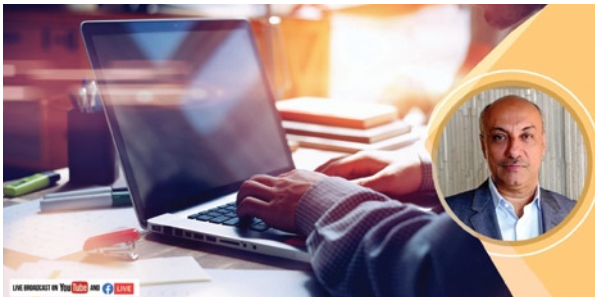

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Embrace digital! **Now!!**

Greetings friends,

We are now in May, in the third month of the lockdown. And, we have a bumper issue here that talks about how the organisations are looking at the future of work.

First, most, or nearly all of us, should be working from home, or remotely, for at least the many months to come! Unless, things change drastically!! Two, there are several collaborative platforms that are now in regular use across organizations. Flock, Lark, Slack, Google Meet, Microsoft Teams, Zoom, etc., are some of them. Enabling employees to WFH using the applications and devices of their choice, while maintaining the security of corporate systems and data, is no easy task.

There will also be an increasing focus on growing the digital business, or, in some cases, starting one, with immediate effect. The message is clear: those who have not embraced digital, are surely going to be left behind.

There will be transformational impact on productivity via AI/ML to solve day-to-day operational problems. Rapid advances in AI/ML and compute power are enabling creation of learning models. Perhaps, there may be more noise now being made about Industry 4.0 in India. The pandemic has brought out the fact that digital workflows and automation are no longer goals; they are requirements. Let's see!

Across to China, there is news that factories are said to have re-opened in places like Wenzhou and Jiangxu. However, the business is not as good as before. Exports are seemingly stuck. There is hope that the situation will change in the summer and second half of 2020.

Meanwhile, Taiwanese chip major, TSMC has plans to construct a 5nm advanced semiconductor plant in Arizona, USA. The USA has also warned Apple that they will be taxed, in case it manufactures anywhere else, besides the USA. The US Government has warned all companies that shift bases to either India or Ireland of new, fresh taxations. The US President, Donald Trump, has been extremely vocal about bringing manufacturing back to the United States.

There is some disturbing news about vandalism towards cell phone towers across New Zealand. Those who are doing it: think for a moment. If there was no ICT infrastructure around, where would we all, and they, be?

The scenario for the future work looks quite interesting. There will be remote collaborative platforms, and perhaps, more of BCPs, and not about one site and one city. There will be more focus on digital business and decent digiwork, along with AI/ML and how it transforms businesses. Make no mistake, everyone will be watching!

Pradeep Chakraborty

Pradeep Chakraborty
Editor
pradeepc@cybermedia.co.in

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EDITORIAL

CONSULTING GROUP EDITOR: **Ibrahim Ahmad**
MANAGING EDITOR: **Thomas George**
EDITOR: **Pradeep Chakraborty**
EDITORIAL SUPPORT: **Dr Archana Verma**
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CONTRIBUTING COLUMNIST: **Pratima Harigunani**
MANAGER DESIGN & COVER DESIGN: **Vijay Chand**

VICE PRESIDENT RESEARCH: **Anil Chopra**

SENIOR VICE PRESIDENT
Rachna Garga (rachnag@cybermedia.co.in)

SALES

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OFFICES

GURUGRAM (Corporate Office)
Cyber House
B-35 Sector-32,
Gurugram,
Haryana – 122 001
Tel: 0124 - 4822222
Fax: 0124 - 2380694

BENGALURU
205-207, Sree Complex
(Opposite RBANMS Ground)
73, St John's Road,
Bangalore – 560 042
Tel: +91 (80) 4341 2000,
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MUMBAI
404 Trade Square,
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Mumbai – 400072
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Pradeep Chakraborty
pradeepc@cybermedia.co.in
Aanchal Ghatak
x-aanchalg@cybermedia.co.in

Future of **work**

Thanks to Covid-19, it is high time that the organisations across India and the world take stock of things. In future, how will clients' sales and other meetings take place? Will remote working be the new normal? Are the various workforces ready to WFH?

Remote Collaborative Platforms

Flock is a proprietary messaging and collaboration tool, founded by tech entrepreneur Bhavin Turakhia in 2014. The app is available on Windows, MacOS, Android, iOS and Web. Flock allows users to configure external apps and integrations from the Flock App Store, and receive notifications and updates directly in Flock.

Flock allows users to configure external apps and integrations from the Flock App Store, and receive notifications and updates directly in Flock. The primary features of Flock are direct and channel messaging, video conferencing, screen and file sharing, and unlimited chat history.

Bhavin Turakhia, CEO & Co-Founder, Zeta and Flock, said, "With the rise of COVID-19, we are witnessing a

> IN FACT, MANY SMALL COMPANIES ARE ALREADY GIVING UP THEIR WORKSPACE AND PLANNING COMPLETE REMOTE WORKING TO KEEP UP WITH THE CRISIS. WHILE THE WORLD IS WORKING REMOTELY NOW, IT IS NOT UNUSUAL TO THINK THAT THE FUTURE OF WORK MIGHT BE 'WORKING FROM HOME' FOR AN INDEFINITE AMOUNT OF TIME

major change in every aspect of the business. At the beginning of the pandemic, we saw the world working remotely and now after 3 months of lockdown, we have to start chalking out new plans. Interacting with colleagues, client meetings, commute to work, nothing will be the same in the near future. Remote working will has become be the new normal. With more people working from home, the need for real estate will decrease.

"As employees have been working from home to contain the spread of COVID 19, many organisations have invested heavily in workplace collaborations platforms to keep the business running smoothly. All job interviews and onboarding of new joinees is being done virtually now. The pandemic has also refocused the minds of global leaders on the fundamental value of human life, human potential and livelihoods. This is the window of opportunity to invest in our most precious asset: our human capital."

Vinay Bhartia, India Head, Lark, said that remote collaborative platforms have brought together people from different groups to work together to achieve desired goals across sectors and verticals.

Lark is a next-generation all-in-one collaborative platform that offers:

- **Seamless connectivity -** On Lark, various components of the suite (Messenger, Docs, Calendar, Video Conferencing, Workplace) are deeply integrated and this allows to have some unique features like Insert a group chat in a Doc, check team members' schedules right from a chat, launch a video call right from a calendar event. Also, Lark Workplace which includes native apps

SOME OF THE TECHNOLOGIES THAT WILL REDEFINE THE WORKPLACE ARE

- **Digital communication –** Tools such as video conferencing, chat, announcement and file sharing apps ensure that meetings across organizations are conducted seamlessly without any glitches or delay. This will continue to happen as we have experienced the benefits personally. Many SMEs will start video conferencing to conduct meetings, reviews, etc., and get a competitive advantage.
- **Project management tools –** These help in better remote collaboration. Teams can collaborate virtually, share ideas and get approvals seamlessly. These apps also come with to-do lists, calendars that keep track of meetings facilitating remote connectivity on another level.
- **Cloud computing –** It facilitates business to store data online which, can be accessed from anywhere. Cloud services have been here for some time and many organizations have invested in these to ensure a paperless office. Given the pandemic and remote communication and collaboration system, the demand for cloud services is further going to increase.
- **Office automation –** Office automation will lead to 'phygital' offices that will be a combination of digital and physical office space. With the tools available, businesses can fully automate 1processes by integrating all the collaborative tools under one app making it faster and more organized system. The way business will run will change drastically with a heavier reliance on these collaborative tools.

like Approval and Attendance, as well as customizable third-party integrations that allows organizations to unite internal workflows and in-house applications into one single platform. It is mobile-friendly as well - the work that is created and stored on Lark is synced in real-time across all devices

- **Affordability -** Lark offers an enterprise-grade collaboration suite for free, with no limit on duration/ team size. When it comes to large companies that have special need for customized customer success service, Lark provides a paid enterprise version as well as value added services.
- Advanced collaborative tools - Users can make the best use of the features like instant messaging, smart calendar, Lark Docs and Sheets, and online space and drive. Users get the freedom of conducting video conferencing with up to 100 people with unlimited minutes and can also Broadcast live to your teams and external users with chat mode.
- **Safe and secured platform -** Lark has passed most of the certified security standards in the world, including ISO 27701, ISO 27018, ISO 27001, SOC 2 and SOC 3 certifications. We are now certified to ISO 27701, the international standard for Privacy Information Management.

Slack is a proprietary business communication platform developed by Slack Technologies. Slack offers many IRC-style features, including persistent chat rooms (channels) organized by topic, private groups, and direct messaging. Content, including files, conversations, and people, is all searchable within Slack. Users can add emoji buttons to their messages, on which other users can then click to express their reactions to messages.

Slack's free plan allows only the 10,000 most recent messages to be viewed and searched. Slack provides mobile apps for iOS and Android besides their Web browser client and desktop clients for MacOS, Windows (versions available from company's website and through Windows Store), and Linux. The Slack CEO didn't reply to our mails.

We have Microsoft Teams as well.

Rajiv Sodhi, COO, Microsoft India, said that there are three things:

- **Working from home -** Organisations across sectors are facing a variety of issues as they grapple with the situation. Transitioning employees to work from home in the initial days was a big challenge. We made Microsoft Teams available free of cost in early March, including for organizations that don't have Office 365. Leading Indian companies have placed their trust in Teams, and are now using it for daily calls, meetings and collaborating virtually. We are also working with them to integrate their internal apps to Teams to make administrative processes absolutely seamless. Teams helps deliver the advanced security and compliance capabilities our customers need - with the native built-in security and management capabilities of Office 365.
- **Access to business applications and processes -** Businesses also need access to their applications. Sectors such as BFSI, ITeS and manufacturing had not equipped their employees to access work-related content or systems remotely. Our team has worked round the clock to help the ITeS giants deploy Azure Windows Virtual Desktop (WVD) This has allowed large workforces to access internal apps, develop and even publish solutions through a desktop hosted on Azure. They are doing so using different browsers from home PCs, laptops and personal mobile devices in an absolutely secure manner. Moving to Azure WVD also did away with the need to scramble for new devices.

Microsoft is also focussing on helping pharmaceutical companies and their partners stay productive and keep medicines and critical supplies available. Intas Pharmaceuticals, a leading Ahmedabad-based drug manufacturer, uses Office 365. They have also adopted Windows Virtual Desktop, allowing critical workforce to access internal content from home and support operations securely.

Learning from home - As educational institutes across the country moved to online classes, they were looking for secure collaboration tools to ensure that learning doesn't stop. Over the last few weeks, we have imparted training to over 4,000 educators and students across 100 schools and higher education institutions to adopt remote learning tools. The British School moved to Microsoft Teams even before the COVID-19 lockdown started to enable its teachers collaborate and interact with students for online learning. Amity University, Noida, has moved 80% of courses online to Teams in two weeks.

- **Uninterrupted care for patients -** Microsoft has been

> FOR CERTAIN DISRUPTIONS, WHERE EMPLOYEES CANNOT PHYSICALLY GET TO THEIR OFFICE, THEY NEED TO BE ABLE TO WORK REMOTELY. THIS CAPABILITY NEEDS TO BE BUILT INTO THE WAY THEY WORK EVERY DAY. THIS MEANS ENSURING EMPLOYEES HAVE SECURE ACCESS TO ALL THE APPLICATIONS AND FILES THEY NEED TO BE PRODUCTIVE FROM ANYWHERE AND ANY DEVICE." TO HELP EMPLOYEES MEET AND COLLABORATE WITH PEOPLE, HE RECOMMENDS THE NEED TO PROVIDE CONFERENCING SERVICES LIKE GOTOMEETING OR TEAMS

able to support healthcare professionals. Its engineers are spending time with doctors and management at healthcare institutes to understand their challenges and requirements. Healthcare Global Enterprises (HCG), which specializes in comprehensive cancer care, has launched a Virtual OPD on Teams for 23 centers across India to provide uninterrupted care to its patients. We are also helping Fortis Healthcare pilot a virtual consultation service powered by Teams.

Lenovo's smart fleet

According to Rahul Agarwal, CEO & MD, Lenovo India, for customers, they are staying closely connected to support their needs. We are going out of the way to support critical customer needs in sectors like software, healthcare, BFSI, etc. by bringing in PCs on priority through chartered flights.

It has started offerings solutions like smart fleet and Virtual Desktop Infrastructure (VDI) for better WFH management by enterprises. On the consumer side, it is offering Learn from Home bundles with extended finance options. Lenovo partnered with e-vidyaloka to create SmarterEd, a free online platform that matches learners with volunteer educators in one-on-one online learning sessions. Lenovo is also offering free services to all PCs (even from other OEMs) till 31st May, to ease pressure off the PC consumers amid the extended covid-19 lockdown.

Agarwal said, "We are not a remote working country culturally, which forces the management to rewire their outlook towards employees working from home. Managers need to realize that good people work well wherever they are, as long as they have the right tools. So, my advice would be to trust your workforce and focus on output, rather than activity. The future of digital work entails two parts viz., technology infrastructure and, a digiwork-ready employee base. We are facilitating and leading the shifts in both the areas."

- **Technology infrastructure –** Through our portfolio of PCs, tablets and accessories, we are enabling employees to work from anywhere. The devices are integrated with ThinkShield suite of security offerings that make remote working safe. It is also offering end-to-end services related to device management, thereby enabling hassle-free management for enterprises.
- **Digiwork-ready employee base -** Gen Z and Millennials comprise ~60% of the workforce today, and they are mostly comfortable with digital technologies. The key aspect now is to manage employee emotions and one-on-one connect. Lenovo does daily video calls with teams and launched multiple engagement activities to keep them connected.Lenovo is offering ThinkPad laptops at all performance levels, accessories, webcams, wireless keyboards, etc.

BCP - and How?

In this section, we look at the business continuity plans across companies.

Safi Obeidullah, Field CTO (APJ), Citrix, said the plan should ideally include -

- Identifying chain of command and key stakeholders when the business continuity plan is invoked.
- Clear communication strategy of how to stay in touch with anyone who needs to know what's going on. This essentially includes employees, executives, suppliers, contractors, etc.
- Processes for how key business functions will continue to be operate, including the order in which functions should be enabled to ensure high priority services are available first.
- How dependent stakeholders and employees are educated on the business continuity plan so they are aware of how things would operate.

He added: "BCP is a critical process for any sized organization and provides a framework on how to deal with disruptions to the normal business operations. It gives businesses an alternative method of operating when a disruption occurs. However, being a different way of working, it needs to be maintained, alternate solutions may need to be deployed and employees need to be trained to work differently under this scenario.

Marshal Correia, VP & GM, India, South Asia at Red Hat, said:"We have learnt about remote collaboration and leadership through our open source communities over the years. We already have strong remote work culture and our IT infrastructure has been built to enable this for both associate mobility and business continuity purposes. To cope with sudden additional load, we integrated the additional capacity for VPN and single-sign on (SSO) infrastructure for users signing on from home. This included adapting to our delivery for new hire equipment, so new hires can get started right away. At Red Hat, all our associates are available for virtual engagements with customers, partners and other ecosystem players. All our events across the globe have been moved to virtual platforms.

We also realise that a remote workforce requires a different communication style and even more engaged leadership. Team leads at Red Hat have stepped up to create virtual office hours and additional (but remote) face time with their teams--not just to convey the latest information and updates, but to check in with their teams and listen to their concerns or just keep the bonds strong.

CIO Talk

CIOs are hard pressed too, in this situation. Major Gen Amarjit Singh, CIO, Persistent Systems, said services are delivered from customer facilities, from our own facilities in our global delivery centres, from customer-controlled or customer-specified IT environments in our own facilities, or by connecting remotely to customer IT environments.

Apart from ISO 27001, Persistent is also certified against ISO 27017 and 27018. It has demonstrated abilities to operate with confidence in the cloud, while maintaining the security and privacy for our customers and corporate services. Being a global, full-stack IT services company, we already had the technology solutions, training and rehearsed business continuity plans in place to handle disruption.

Harnath Babu, CIO, KPMG, said - "For digital work, the first step is to provide the right IT infrastructure to the entire workforce to work conveniently from their homes. The next step is to create a team-based digital space environment where they can work together – irrespective of wherever they are. We are providing our workforce with cloud-based communication and collaboration technology tools that help them connect with each other virtually.

"Enabling the IT support system to work remotely is another critical step, as providing prompt assistance to the workforce for any IT-related concern is pivotal to facilitating a digital work environment.We have also taken measures that help us secure the user endpoints against phishing and ransomware attacks.

"As for the latest technologies that going to redefine workplace, Harnath Babu pointed to AI, RPA and the IoT. With social distancing being the new norm, workplaces will be about fewer employees and more space. This could mean decluttering the office space,and doing away with the collaboration workspace for employees."

Focus on Digital Business

There will be an increasing focus on digital business as well. Manoj Kohli, Country Head, SoftBank India, SoftBank Group International said, there will be some shifts. Oil prices came down from $60 to $20 and below. There are electric vehicles. Next, how is China being addressed by the world? The world wants +1 and +2, beyond China. This will happen, with India leading the charge. The third is digital business. All towns and villages will improve further. Many start-ups and companies are using 3G/4G infrastructure. India will also benefit due to globalisation.

> WITH ADVANCEMENT IN AI-DRIVEN TECHNOLOGIES AND ROBOTICS, MORE WORK WILL BE DONE BY SMART MACHINES. VIRTUAL ASSISTANTS WOULD BE THERE TO RESPOND TO USER QUERIES IN REAL TIME AND PERFORM OPERATIONAL ACTIVITIES.RPA WOULD CONTINUE TO AUTOMATE REPETITIVE TASKS, DATA AGGREGATION, ANALYSIS ETC., SO TEAMS CAN SAVE TIME AND MAKE QUICKER, MORE INFORMED BUSINESS DECISIONS.CLOUD-BASED TECHNOLOGIES WILL STREAMLINE WORKFLOW, FACILITATE COLLABORATION AND INCREASE WORK EFFICIENCY. THE ORGANISATIONAL SYSTEMS WILL BE ALIGNED TO THE CLOUD FOR IMPROVED DATA SECURITY

US, Europe, Korean suppliers will come to India as there is a huge domestic market. India also has a chance to move the unorganized economy into an organized economy.

Digitisation will be the big factor. If companies do not digitize, they will be left behind! Many will adopt new business models, online and offline. Models need to be changed, be profitable, and digitized. There should be a new performance culture. Speed, execution, decision-making process of a company will come into play. There will also be rebranding - inside and outside the company.

Karthik Ganapathi, VP & MD, Honeywell Connected Enterprise, India, said that Honeywell is offering its diverse set of customers from the Oil & Gas, Refining, Petrochemicals, Chemicals, Pharma, Pulp, Paper, Power and Mining & Metals industries, solutions and a suite of other Honeywell Forge offerings to ensure complete visibility of the essential manufacturing processes, work continuity, remote testing and remote delivery of critical services. The solutions also enable remote operations from anywhere, patch/anti-virus updates and system security monitoring.

He said: "Honeywell is using the power of Honeywell Forge to help building operators remotely monitor buildings and offer improved operations and occupant experiences. Honeywell recently launched the Honeywell Forge Energy Optimization - its cloud-based, closed-loop, machine learning solution that continuously studies a building's energy consumption patterns and automatically adjusts to optimal energy saving settings."

Every digital product Honeywell brings to the market has strong productivity improvement characteristic. This may be in form of asset productivity, process improvement, or worker productivity. Honeywell Forge drives significant productivity improvements for our customers and brings an end-to-end view on productivity by incorporating AI/ML to create continuous learning systems and with the capability to provide close-looping of recommendations via mobility solutions.

Transformational Impact of AI/ML

According to Honeywell, the first is the transformational impact on productivity via AI/ML to solve day-to-day operational problems. Industrial companies traditionally used rules-based decision logic in manual and software-driven decision making. Rapid advances in AI/ML and compute power are enabling creation of learning models (algorithms that evolve/adapt based on new information) that help operators make better and more accurate decisions.

Ganapathi said: "AI/ML-based analytics solutions enable aggregating data, analysing/modelling the data, and training it to mimic real-world observed behaviours and support meaningful outcomes. For industrial solutions, it starts with a 'historian' that aggregates time-series and event data. This data is fed into the analytics engine, which models the information using proprietary algorithms developed over several years, combining data science and field operator expertise. The insights are

AS WE SEE THIS DIGITAL SHIFT TOWARDS MOBILITY AND ANALYTICS, COMPANIES NEED TO START EMBRACING STATE-OF-THE-ART TECHNOLOGIES THAT ALLOW FOR SCALE AND RELIABILITY. THE VOLUME OF DATA GENERATED IN ANY ORGANISATION DOUBLES EVERY 3-6 MONTHS. ANALYTICS SYSTEMS NEED TO BE ABLE TO TAP INTO THIS WEALTH OF INFORMATION TO 'LEARN' AND BECOME MORE EFFECTIVE

presented to the end-user, who takes specific actions and records those actions."

There is close-looping via mobility solutions. Industrial companies, with a majority of desk-less workforce, are already set-up to embrace mobility solutions. There are usually Standard Operating Procedures (SOPs) for each operator/technician to do a particular job. Each job requires understanding the information (alarms, events), conducting a series of checks on an equipment or process, performing adjustments/change settings/ replace parts, talking to experts, getting supervisor approvals, and closing the job. Some of these activities require on-site presence and some can be executed remotely. In the past, all of this workflow would have required the technician(s), supervisor, and expert (to physically inspect) to be on-site.

This entire "paper" workflow is now digitised, using secure digital worker assist solutions which run on the worker's mobile device and provides standing instructions for the job, interprets asset/process data, links to experts with through various chat capabilities, incorporates augmented reality features, and has digital logbook capabilities.

Cloud infrastructure enables Industrial Internet of Things (IIoT) and offers the ability to rapidly scale in a secure manner. Cloud applications allow for secure remote access and enables the mobility and analytics solutions. These applications need to be available 'all the time' and cloud deployment ensures necessary availability and support. The market has spoken as well - Cloud has become ubiquitous in the past couple of years.

Ravi Chhabria, MD, NetApp India, said that all companies have been forced to re-evaluate their IT models and accelerate digital transformation efforts as employees move to a WFH model. So, technologies that support WFH are the no. 1 priority. Companies have rolled out mandatory remote work policies, but not all have the right infrastructure in place to support the influx of users to end-user computing (EUC) and virtual desktop infrastructure (VDI) applications.

As more of enterprises move their daily lives online and employees' transition to remote work environments, companies are experiencing sudden influxes of traffic and data. This data needs to be proactively protected and optimized over a hybrid cloud infrastructure. So, you need tools that to give you visibility into your complete infrastructure—both in the cloud and on the premises—and to make critical adjustments quickly. AI for predicting and analyzing this data to make business as well as infrastructure adjustments is essential. With all this data moving through multiple end points, data protection is also the need of the hour.

Application performance and availability challenges depend on where your apps and data live. Storage often plays the most critical role in application performance. Storage technologies that allow for rationalizing your data and application infrastructure, move data between on-premises storage and cloud, and help ensure data availability across clouds. NetApp continues to invest in this space.

He added, "Our recent acquisition of VDI superstar CloudJumper is an example. NetApp has deep product

> VOICE-POWERED HEALTH TECH COMPANIES ARE GOING THE EXTRA MILE IN PROVIDING TELEMEDICINE AND CONVERSATIONAL APPLICATIONS IN ASSISTING PATIENTS GLOBALLY. THE BANKING SECTOR HAS ALSO URGED CITIZENS TO STAY SAFE AND BANK FROM HOME USING IMOBILE/INTERNET BANKING FOR ALL ESSENTIAL BANKING SERVICES.

sets within analytics, like Active IQ, and data protection. All of this is going to come together over time as a complete vertically integrated stack. NetApp has the best possible solution – a true vertically integrated stack and solution for partners and customers."

Sunit Sinha, MD, Strategy & Consulting, Talent & Organisation, Accenture in India, said that leaders must take into account three areas: physical, mental, and relational needs of employees. In meeting the physical needs of employees, leaders empower the workforce to take responsibility for their health and well-being and work in a safe and secure environment. In terms of the mental needs, the organisations need to build and bolster psychological resilience amongst their employees. Relational needs enable the employees identify with the larger mission and purpose of their organisation, which gives them a sense of shared values and belonging.

Teams will need flexibility and permission to work differently. Consecutive hours of uninterrupted work may not be feasible, as many people deal with disrupted eldercare and childcare, difficulties in securing essential supplies at home, and potential healthcare issues. Managers have to evolve work rules for more flexibility, based on emotional intelligence and people's individual needs. They need to encourage the adoption of digital workplace tools and practices and enable employees to migrate to new ways of working in a remote environment. This will result in employees having more control over their schedules and thereby, enhanced work-life balance.

HiriyannaKowshika, Partner and Head of India, Capco, said the access to remote communication tools such as Teams, Zoom or Skype means for many employees, their days remain as structured and busy as ever – if not more so! Pressures and tensions around work/life balance have not really disappeared. Employers should encourage their staff to establish and maintain clear boundaries, whether that involves making a dedicated work area within the home if possible or maintaining regular, contained working hours.

Sangeeta Gupta, Senior VP & Chief Strategy Officer, NASSCOM, observed that technology has given exposure to companies of all sizes across the industries. The world is witnessing a great transition, with legacy sectors and organisations being compelled to digitally transform overnight; schools are going online, meetings are taking place online.

Software has emerged as a growth catalyst. The online collaboration tools like Zoom, Slack, Microsoft Office365, and others are already seeing increased demand as companies increase their remote-working capabilities. It is forecasted to see a continuous growth in demand for cloud infrastructure services and potential increases in spending on specialized software. We are seeing a rise in digital epidemiology tools, chatbot helpers, EHR guidance tools and rapid response test kits.

Redefining Workplace

How are the latest technologies going to redefine workplace? Major Gen. Amarjit Singh, CIO, Persistent Systems, divides theseinto three areas – the network, the endpoint, and the security.

- From the network side, we are already seeing Identity

and Software Defined being the drivers. Essentially, identity-based networking allows us to move traffic with great confidence to the right individual, without too much emphasis on location. The software defined part means that a lot of networking capability has moved to the cloud and will move faster here on.

- At the endpoint, we are seeing a major move for hardening and provision of a variety of services from the operating system OEM. This means that the endpoint can be made less complex and easier to manage, directly from the cloud, thus reducing dependence on facilities.
- On the security front, we are seeing extensive authentication and authorization with OAuth, SAML, OIDC, U2F etc., being supported from the cloud and enhanced inter-operability across platforms. These allow robust and efficient implementation of Zero Trust, which gives enterprises confidence in trusting the user and endpoint combination, with no reliance on traditional perimeter of enterprise.

Ravindra Kelkar, Area VP, Indian Subcontinent, Citrix, noted that enabling employees to WFH using the applications and devices of their choice, while also maintaining the security of corporate systems and data, is no easy task. Leveraging tools like digital workspaces, collaborative technologies and dynamic application control and delivery management has allowed our employees to connect and get work done from wherever they are in a secure and reliable manner.

The focus is on activating untapped workforces and attracting the right talent across the globe in the long term. We will also continue to keep technologies like digital workspaces at the core of our business continuity plans, to help manage resources in a scalable and dynamic way that global business environments demand.

Citrix provides a complete range of digital workspace solutions. We've kept the critical three Cs: connectivity, communication and collaboration, at the centre of all our offerings. Citrix SD-WAN has been instrumental in helping customers manage the QoS and bandwidth burst in a dynamic way as they leverage both private and public cloud. They've tapped our application delivery control (ADC) solutions to allocate resources to our applications. Citrix Analytics for Performance has helped the customers determine root cause of performance issues across their remote working infrastructure.

Citrix Digital Workspaces are how organisations boost productivity, engage consumers and empower their people. With a flexible and secure platform, organizations can connect, collaborate, and innovate anywhere—on any application, any device, any cloud, at any time.

Decent Digiwork

With the focus squarely on digital working or digiwork, Gerd Hoefner, Siemens Healthcare, said that as the curve flattens, many organizations will shift from questioning the digital future to adopting it seamlessly. The pandemic has made remote working an accepted norm. "We will analyze what we experienced during the lockdown, what went well, and what makes sense to be maintained as a part of our new way of working post Covid-19. Even in the new way of working, our people beliefs, and our commitment to inclusivity and diversity will not change. Also, ensuring the health and well-being of our employees will always remain a top priority for our organization."

Shraddhanjali Rao, VP HR, SAP India, said that COVID-19 situation has challenged us to re-imagine how we look at work and workplaces. "Our fundamental belief around certain job roles has been shaken from perceiving that a specific kind of support job requires someone to be present in the office for all days of the week to debunking the norm that relationship building with customers happens only with in-person meetings. This has also given us the opportunity to relook at the kind of roles we define for part time workers and those who are returning from career breaks."

This has been a wakeup call for all organisations across industries to shift mindset to not just adapt to the new normal, but also explore possibilities of new workplace realities and alternate talent pools. In addition to relooking at organisation structures to deliver greater speed, agility and adaptability, we should not lose our focus on equal opportunity and representation with inclusion across physical and virtual barriers.

Sriram TV, Head of HR, Robert Bosch Engineering and Business Solutions (RBEI),said that for starters, online social collaboration platforms are here to stay – Zoom, WhatsApp and a host of others. While this is not just for meeting and calls, online learning has also seen a shift – almost every week I get invites for 4-5 webinars, if not more. There is a definite shift in the way we work and learn.

> BUSINESSES WILL NEED TO GIVE UP THE TEXTBOOK APPROACH AS THE SITUATION CURRENTLY IS VERY DYNAMIC AND THINGS THAT WERE RELEVANT BEFORE MAY NOT BE GOING FORWARD. WE NEED TO ADOPT NEWER MODELS, WHEREIN, WE CAN CONTINUE BUSINESS PROCESSES SMOOTHLY WHETHER WORKING FROM OFFICE OR FROM HOME

To augment online training sessions, next-gen remote working technologies like AR/VR would come into play to aid contactless training/maintain social distancing.

"At RBEI, we have made the best use of our internal collaboration platform, Bosch Connect, to remotely engage with our teams – be it the fun moments of WFH or the leadership connects. While going all digital has its advantages, being home alone from colleagues and work does take its toll too – the idea is to balance technology adoption with creative engagement approaches to maintain a sense of community and shared culture. They say 'Necessity is the Mother of Invention'. I think this pandemic has framed a new adage 'Crisis is the Mother of Invention'."

Regarding the future of decent digiwork, Harnath Babu, KPMG, said that with COVID-19, the workplace, as opposed to what we have known so far, is changing into a digital work environment. Some of the leading IT companies have already taken the leap by reportedly taking the decision to reduce the number of employees in the office to 25-30%. This will be one of the tipping points to drive digital transformation of the workplace, and we shall be moving our working lives online – which will be the new normal.

Gig work, which involves working as a freelancer or on short-term contracts, will also play a pivotal role in the future of work for the flexibility as well as cost benefits it offers.We will be focusing on a balanced approach wherein only the required employees visit office while the rest connect digitally. We shall, at the same time, focus on strengthening the security posture and ensuring business-critical and client confidential data remains completely safe and secure.

Ian Shearer, MD, APAC, Park Place Technologies, felt that the sudden switch to remote digital work, overnight and en masse, is highly likely to accelerate changes in how work is performed and the way we think about working arrangements. Covid-19 may prove to be a tipping point for the digital transformation of the workplace. Many businesses may have had their eyes opened to the opportunities and benefits that remote digital working can offer to both the organisation and its workers. While these may include greater flexibility for staff, it is the potential cost reductions which are likely to prove the biggest driver for companies, particularly in a more challenging economic environment moving forward.

We need to facilitate digital work, for the many advantages it can offer. But we must not allow this to assume a form for workers—unprotected and socially deprived—too common in today's economy. Done right, we can shape a fair future and provide 'decent digiwork'. At Park Place, our plan and road map offer organizations the tools for better digital and remote working, while ensuring the stability, management and optimization of their digital platforms.

Padmanabhan Iyer, MD & Global CEO, 3i Infotech, said that collaboration tools for video conferencing, e-meetings, VoIP, telephone bridges have become the norm today to facilitate remote working. "Our Business Continuity Plan had an allowance for 50% of our staff to work from home in an emergency. To scale to 100%, optimizing and testing

with the right tools was the challenge, which was easy to overcome in less than a week. We have increased the Internet bandwidth across all the access points/servers to meet the additional load."

Cybersecurity issues associated with remote working are real. We have a well-defined work from home security policy in place that lays down an approved set of tools and platforms to be used. VPN and firewalls are crucial when employees connect to unsecured networks from home. We have scaled up the same. We are also making sure that all the installed software is up-to-date.

Hiriyanna Kowshika, Capco, felt that decent digiwork should be built around methodologies such as Agile and Design Thinking that look to simplify and accelerate the iteration and delivery processes within organisations. New ways of working can improve the dynamism and effectiveness of teams.It will help them to deliver products and services that are more personalised, flexible and impactful for their customers.The challengewill be to manage and mitigate the potential downsides of a virtual work environment: over-work, stress, isolation, a loss of focus and engagement. Companies will need to rethink how they enable and empower their employees in a distributed work environment.They need to provide right tools and technologies, ensure clear lines of sight and aligned decision-making across teams, and implementing blended working patterns.

Nitin Kulkarni, COO at Harbinger Group, said that they are using some of the latest technologies to facilitate digital work. Zoom and MS Teams are being used actively for collaboration. The enterprise processes are automated via cloud-based systems. The operational processes were already digitized.In most cases, the existing processes have been digitized. The future will be about reimagining these processes to take advantage of the technology. For example, almost every organization has some system to help them do performance management.

In future, technology can help take performance management to the next level by enabling the employee on a real-time basis to track her performance, suggest improvement areas and strategies based on personalized data, etc. We plan to re-imagine quite a few of our internal processes and bring in data science and personalization to make every process extremely employee-centric.

Sangeeta Gupta said that as we start adapting to these new business conditions, digital transformation is demonstrating its value and its impact on the very ecology of business in these tough times. Now, with various types of communication software, it has become easy to work remotely from any corner of the world.

She added: "We need to equip our MSME sector with the same digital advantages – so they can step out of this difficult time on an even footing. With emerging technologies at the centre of business operations, we will also need to adapt and reskill to keep pace with this dynamic environment. At present, there is an opportunity for every industrial sector to re-evaluate its digital transformation journey, and take the necessary steps to accelerate the pace of digital adoption. We are confident that when we finally emerge from all of this, we would have leveraged technology in thousands of ways that may not have been conceivable earlier."

Ravi Chhabria, Netapp, added as this way of 'digiwork' becomes more prevalent, it is shaping the future of work. Commuting and urbanization are two birds killed with the one stone that is work from home, but there is more. We think technology will shape and drive this, but really it is all about the people. In India we often live in large multi-generational families, with our elders and our kids.

Even as women are thriving in the workforce, they often carry a heavier burden at home, by way of housework and caregiving. Now that work has moved to the home, people are learning and being forced to confront non-work obligations. This will change behaviour. Not only on the part of men, and their role at home, but maybe, now more women will join in the workforce. Work situations that allow for home life balance, maybe even home-life integration, might be here to stay. That is a very good thing for a diverse workplace.

AI and ML to the Fore

According to Ian Shearer, Park Place, a major thrust of our business has been the automation of the services and the enhancement of the digital and self-services capabilities available to our customers. Our best of breed, multi-vendor monitoring product ParkView combines AI and ML to deliver both reactive and predictive remote fault detection and automatic ticket generation to ensure more accurate (97% first time fix rate) and faster (31% quicker mean time to repair) resolution, minimizing potential downtime. This, combined with our portal and mobile app provides

> WE WILL WITNESS A SURGE IN THE USAGE OF TECHNOLOGY SOLUTIONS IN THIS NEW NORMAL ESPECIALLY BY NON-DIGITAL NATIVES WITH A GROWING INTEREST IN INCREASING THEIR KNOWLEDGE IN THAT FRONT. WE WOULD CONTINUE TO WITNESS TECH CONSUMPTION LIKE COLLABORATIVE PLATFORMS REPLACING IN-PERSON INTERACTION AND AN INCREASE IN DEMAND OF PRODUCTIVITY TOOLS

customers with a single pain of glass view of the health of their whole IT infrastructure (Compute, Storage and Network) along with the ability to receive real time updates on the progress of service incidents, no matter where they are working from.

In the next phase, Park Place is launching a new ParkView monitoring service focused on monitoring OSs and Virtual OS environments (VMs). This is a service our customers having been requesting for years and we expect that it will add more revenue opportunities and value to our customers. We are looking to launch a discovery solution that will enable our customers to remotely locate all of their devices and get a real-time inventory of the IT estate.

Sriram TV, RBEI, recommended a disaster recovery plan for theMSMEs and SMEs.He also advisedconducting regular WFH / disaster drills,to check how well-equipped we are to handle such calamities in the future. There were suggestions to curtail costs, rethink on the HR policies andrevisit the employee wellness strategies.

Marshal Correia, Red Hat, said that we have learnt about remote collaboration and leadership through our open source communities over the years. As a result, we already have a strong remote work culture and our IT infrastructure has been built to enable this for both associate mobility and business continuity purposes. To cope with sudden additional load, we integrated additional capacity for VPN and single-sign on (SSO) infrastructure for users signing on from home. This included adapting to our delivery for new hire equipment, so new hires can get started right away.

At Red Hat, all our associates are available for virtual engagements with customers, partners and other ecosystem players. All our events across the globe have been moved to virtual platforms. We also realise that a remote workforce requires a different communication style and even more engaged leadership. Team leads at Red Hat have stepped up to create virtual office hours and additional (but remote) face time with their teams--not just to convey the latest information and updates, but to check in with their teams and listen to their concerns or just keep the bonds strong.

Latest Technologies

Marshal Correia, Red Hat, said that as organisations across the globe are trying to adapt to new ways of working and trying to define the new normal, they are presented with different challenges. While some are focused on adopting a virtual-first footing, there are some who are struggling with improving efficiency and productivity of their developers then there are some who are trying to push the boundaries of scaling to make remote workforce productive. Organizations who have been embracing agile working like DevOps with infrastructure built on hybrid cloud, mobility for their digital transformation are better prepared to operate effectively during the pandemic.

While these current challenges are unfamiliar and new, customers are eager to accelerate the innovation and digital transformation projects. Organizations are looking to selectively invest in tools and technologies like automation, cloud-native development, integration

> THE FUTURE OF HOW WE ARE WORKING AND WILL WORK, LOOKS QUITE INTERESTING. THERE WILL BE REMOTE COLLABORATIVE PLATFORMS, MAYBE, MORE OF BCP AND NOT ABOUT ONE SITE AND ONE CITY, MUCH MORE FOCUS ON DIGITAL BUSINESS AND DECENT DIGIWORK, ALONG WITH THE TRANSFORMATIONAL IMPACT OF AI/ML

that gives them resilience and robustness to adapt faster for such unprecedented times. I believe open source, subscription-based models will become more appealing in the times to come.

Shraddhanjali Rao, SAP, India, noted that they have never been so digital in our 'working' than we are at this very moment! Technology has already transformed businesses, workplaces and operations to go digital –from HR processes to consumer experiences and beyond.

SAP is offering Remote Work Pulse. Remote+ On-site Work Pulse is a technology offering from SAP Qualtrics to help organizations assess preparedness for a remote workforce and has been made publicly available for free by SAP. Organizations making use of the Experience Management (XM) platform can rapidly address entire workforce needs around well-being, safety, resources, and enablement for their employees working from home. They offer organizations with surveys and corresponding reports to identify and prioritize employee needs in order to take quick actions.

Gerd Hoefner, Siemens Healthcare, felt that the pandemic has highlighted the need to embrace digitisation, and this is a positive development. To facilitate remote working, we have significantly enhanced our IT infrastructure to enable secure and efficient remote access for all our employees. We rolled out a range of virtual tools to intensify collaboration and communication.

Regarding latest technologies,he said the acceptance of remote working will increase, which will put the higher demand in ensuring the resilience of systems, especially with respect to cybersecurity. Current set of collaboration and communication tools, which allow video calls, instant messaging, shared repositories, and communities, have worked well for us, and we will see greater use of such platforms. It was impressive to see how people were quickly able to switch to a home office and the new way of working while keeping all processes running against all the odds. Getting things done needs more than just technologies; it requires people with passion.

Adarsh Mishra, CHRO, Panasonic India, noted, "We have re-modelled our operations to be digital-first and have introduced 'Workplace' – an internal communications platform which keeps us all connected. Processes have been put in place to ensure employees and their respective managers discuss daily agenda, updates of activities in pipeline and do virtual meetings on a regular basis. In an environment which is weighing down heavily on our people, we've created recreational groups for them to engage with each other and help break the monotony related to hobbies, learning platform – Learnado among others."

Chaitanya Sreenivas, HR Leader, IBM India, said that IBM has always had a flexible workforce. IBM has also re-invented itself several times. In early March, we recognized how things are going elsewhere. We moved to WFH scenario. DoT took care of the connectivity. We were already in a WFH mode. We are also working with clients, and supporting them. Meticulous plans - working with clients, employees and authorities, have worked. We are also making sure our OSP line is working. We are about 99 percent WFH from March 22nd. IBM has a lot of collaboration tools. We have multiple VC and voice tools, besides communication and sharing tools.

The recent crisis has tested a lot of technologies at scale. There have been new technolgies created. With that, there may be more opportunities for us to work differently. The new normal may not have everybody in office. We are also interacting with clients differently. There has lot of comfort that has come through as well. A lot of new dimensions have opened up.

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Pradeep Chakraborty
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DQ LIVE TECH LEADERSHIP TALK

Businesses Need to **Embrace Digitisation on Scale**

DQLive, Cybermedia, hosted a webinar on Accelerate Your Business Growth, in the Ask Me Anything series, featuring Karan Bajwa, Managing Director, Google Cloud

During the web conference on accelerating business growth, opening the discussion, Bajwa said: "I will start by giving my lessons and learnings. A lot has been spoken and written about Covid-19. We have never seen anything of such scale, expanse and longevity, ever. How do we respond to this? How do we recover? How do we adjust to the new normal? How do we build on the new normal?

"The old ways of working may not hold good anymore. All of our assumptions around the last two months have been demolished. There will be huge pressure on all of the CEOs to drive their businesses and growth. We will all need to find new ways to survive and grow. When such events have happened in the past, we did go into a zone of uncertainty for a little while, and got back.

"The customer patterns emerging are of essential services, like groceries, hospitals, telecom networks etc. These folks need agile solutions that can rapidly scale up, and down, for delivering their services.

Emerging Business Model

Pradeep Gupta, CMD, Cybermedia, spoke about the business strategy. He asked what could be the new emerging business model?

Bajwa replied that there will be huge transition right now. This also offers us an opportunity to completely change the way that we embrace technology. Technology adoption has been fairly tier-based, for now.

There is a need to remove the elitism from all of this. Just transforming, every capital dollar will be very useful. There is need to focus more on the consumer expense. Re-aligning your organization's structure is also very important. People need to be super strong and be aligned with the new ways of working. The use of technology will surely go up.

Bajwa noted that technology is at the core of why and how we are functioning. We are able to do stuff much faster and better. We also need to salute all of our telecom companies. They have stood up and risen to the occasion. There are frontline warriors as well.

Your ability to collaborate has much different meaning right now. We are seeing everything from the lens of a good video platform. We have to build a flexible, remote environment. There are much more bolder ways of doing things. There are better ways to access corporate networks.

According to TCS, post-Covid-19, 75% of the TCS employees will permanently work from home by 2025, from 20%. That means, your workplace cost literally comes down by 75%, minimum. As you go back to work, everything should be at your table.

Focus on Security

Next, Pradeep Gupta raised the topic of security to be an issue. How does it work with everything moving out?

Prakhar from Google said that we have come to a point where security is a parameter inside the walls of a company. In today's time, devices have moved out. Security has been addressed via firewalls. How do you onboard the new employees? The dynamics of security has changed. Zero trust security is again in vogue now. How can I make sure that the employees are mobile? Each request is contextualized and validated. We also look at the user identity, device, and ensure that there are right access policies in place. Authorisation, authentication and routing are the three key parameters.

Bajwa said we will have to do things and surprise our people. There are open office hours. The whole ability to work and have fun was suddenly gone. We need to respect that not all homes are made for people to work from home. We had a session, recently. People also sang and performed. They need to further stretch their imagination.

Pradeep Gupta also brought up SAP and how it is there on Google Cloud. How can people get symmetrical services Bajwa agreed that SAP is available on Google Cloud. There are a whole lot of capabilities available now. There is GDPR compliance. Prakhar also added that SAP is available on Google Cloud. Enterprises can reach out to Google. A bunch of companies have adopted GCP (Google Cloud Platform). We are slightly differentiated with security.

Bajwa added that there will be a multi-cloud world in the future. However, not everything can shift to the cloud. There should be flexibility with the on-prem and the on-cloud. People are also worried about being tied down to a platform. You will now have the flexibility of moving your resources. Automation via AI/ML will become prevalent. WFH is way beyond video.

MSMEs, SMEs and Skills

Another question asked was: what will happen to the skills process? Bajwa said that human interactions are very relevant. Right now, we are forced to not have that. We are having a real conversation. For example, it takes a huge expense to bring the same people to attend a conference. Some of the physical experience will be lost, but virtually, we will learn much faster. People also want to learn. They want a good experience.

On how Google will support startups, Bajwa added that there are startups that were fundamentally solving a problem. They will come back. There were some others, who were not solving a problem. Google is perhaps, the best technology company. It provides technology to everyone.

How can Google help the SMEs? He said that India has a very interesting pyramid, with Mumbai (or New York) on the top. The mid-market is the real India. It has been serviced in a fragmented manner. That's one reason MSMEs and SMEs have not really been able to absorb technology. That will change! There are incredible options available out there. SMEs have to break the old way of embracing technology. They do not have to worry about technology and scale. Every MSME should also look at a consumption of the technology. We are helping SMEs and MSMEs in every possible way.

For the unemployed, he said that Google is trying to make sure that the access to technology is given so that it lowers the entry barrier. For any enterprise which is facing a problem, we are offering high-end video capability. We have given them the permission to use this technology, without cost. We went ahead and opened the capability to any consumer. We have seen a 30X multiplier increase among the users. This included the large enterprises as well. We are taking technology further down, making it available to anyone.

Lastly, in the post Covid-19 era, are we heading to a cloud economy? Bajwa noted if we go back to the old ways, it will be a lost opportunity. BCP should allow you to work remotely for ever. Consumption economy should be the new world.

Pradeep Chakraborty
pradeepc@cybermedia.co.in

—MANOJ KOHLI
Country Head, Softbank India,
Softbank Group

A V-SHAPED RECOVERY

SoftBank recently appointed Manoj Kohli as its India head. He is currently in charge of the government relations and public policy efforts. Earlier, he was the executive chairman of Softbank's renewable energy arm, SB Energy, before being the MD and CEO of Bharti Airtel for 13 years. Here, Manoj Kohli speaks about how India is facing Covid-19, and the way ahead

How are you dealing with the Covid-19 situation? What plans have you put in place?
India is currently fighting the situation owing to the Covid-19 very well. We would like to complement the Indian government. The impact of coronavirus may be one of the lowest in the world. India will see a V-shaped recovery. Next year, 2021, will turn out to be a normal growth year. Our portfolio of companies is also opening up well.

Are you giving employees more control over their schedules?
The employees are now saying that their productivity is much higher. There is also a digital dexterity that is being displayed across the group, and the globe.

How are you assessing on learning from the enforced experiments around WFH?
The post vaccine era, as and when it will come, will bring about a big change. Companies will have to reset and develop new strategies and new business models. The digital businesses will also grow faster.

This is a challenging time for managers. What advice would you give them?
The managers have a very special role to play in all of this. They have to display empathy, hope and optimism towards their co-workers.

How is the work/life balance now?
The work and life balance are currently going on well; if not, better. Earlier, people used to fly for a 2-hour meeting in London. Such travel will be replaced by online meetings. Also, the families themselves are happy. Travel will now be impacted because of the changes in the digital business behaviours.

Are there any policy responses that you would give to the MSMEs and SMEs?
All of these SME and MSME companies may have some trouble in the short term. However, they are agile and flexible. They are bound to bounce back, stronger.

How are the latest technologies going to redefine workplace?
The technology sector will now move much faster! Healthcare and the education sectors, especially, will gather speed. Even verticals, such as solar, EV etc., will grow much faster.

How do you plan for a future of 'decent digiwork'?
Now, things are changing quickly. Leading companies like TCS are already shaping the change. Peoples' lives will also change. We will be moving towards digital.

Pradeep Chakraborty
pradeepc@cybermedia.co.in

—HARNATH BABU
CIO, KPMG

AI, RPA AND IoT REDEFINE WORKPLACE

KPMG is a global network of independent member firms offering audit, tax and advisory services. Its member firms operate in 147 countries, collectively employing more than 219,000 people, serving the needs of business, governments, public-sector agencies, not-for-profits and through member firms' audit and assurance practices, the capital markets. Here, Harnath Babu, CIO, KPMG, presents his thoughts on the future of work

How are you dealing with the Covid-19 situation? What plans have you put in place?
At KPMG in India, we already have an agile working environment. However, enabling it for 100 per cent of the workforce was challenging initially. So, to deal with the COVID-19 crisis, we started with our business continuity plan (BCP) by ensuring availability of the critical infrastructure enhanced by network bandwidth and VPN capacity so that employees could work from a remote location and access enterprise applications securely as well as without any disruption.

Our IT support team played an instrumental role in helping the business promptly address any technical issue by providing the necessary guidance whenever required just in time. We are leveraging cloud-based audio and video-conferencing platforms that help communicate and collaborate with one another efficiently, thus not hampering productivity.

Furthermore, to maintain data security and compliance, we are regularly updating user endpoints with the latest security patches. Our team is also monitoring tools as well as incidents to ensure delivery efficient operations.

Are you giving employees more control over their schedules?
At KPMG in India, our commitment lies in maintaining maximum flexibility with minimum constraints as we focus on performance. With the agile working environment, our employees do have the flexibility to control their schedules and manage work accordingly.

How are you assessing on learnings from enforced experiments around WFH?
We have formed a core Business Continuity Program (BCP) team to take stock of the situation on a regular basis. We meet daily to share observations and strengthen IT infrastructure and optimize processes aimed at delivering the best possible work-from-home experience to our employees. We are reviewing the situation and recording the lessons learnt, including how to reduce exposure for future events and how to be better prepared for the future of work.

This is a challenging time for managers. What advice would you give them?
Definitely, it is a challenging time for managers. While ensuring that their team is safe and secure, it is also a manager's responsibility to keep up the team's motivation while maintaining productivity and ensuring client deliverables are met as committed.

Communication is a must to check in daily with the team and encourage everyone to stay in touch with each other. It is equally important to discuss the individual and team workloads that must be balanced, as well as encourage the team to invest in skill development. Alongside, trust and flexibility play a critical role to build healthy relationships and get work done on schedule.

How does work/life balance work in a crisis like this?
The pandemic has brought our work and home lives under the same roof. And, as we are all working for longer durations, we must take steps to balance work-related and personal activities. The first step, I believe, is to create a dedicated space for work and plan your day in advance. This can be done by setting your priorities straight and blocking your time for specific activities for the day ahead.

One's routine should include physical activities such as walking, exercise or yoga; a no-screen-window during which you will not check or respond to work-related emails; and spending time with your family.

ENABLING THE IT SUPPORT SYSTEM TO WORK REMOTELY IS A CRITICAL STEP AS PROVIDING PROMPT ASSISTANCE TO THE WORKFORCE FOR ANY IT-RELATED CONCERN IS PIVOTAL TO FACILITATING A DIGITAL WORK ENVIRONMENT

The process of achieving a healthy work-life balance is a long one, so, if you feel overwhelmed at any point in time, you must talk to someone – your family or manager and make continued efforts to live a balanced life.

How are you now facilitating digital work?

The first step is to provide the right IT infrastructure to the entire workforce to work conveniently from their homes. The next step is to create a team-based digital space environment where they can work together – irrespective of wherever they are. For this, we are providing our workforce with cloud-based communication and collaboration technology tools that help them connect with each other virtually while blurring the boundaries of physical location.

Enabling the IT support system to work remotely is another critical step as providing prompt assistance to the workforce for any IT-related concern is pivotal to facilitating a digital work environment. Another aspect that we are on top of is protection against cyberthreats. We have taken several measures that help us secure the user endpoints against phishing and ransomware attacks.

How are the latest technologies going to redefine workplace?

Technology, such as artificial intelligence, robotics process automation and the Internet of things, is going to redefine the workplace in several ways. Here are a few examples.

- First and foremost, with social distancing being the new norm, workplaces will be about fewer employees and more space as opposed to how it used to be earlier – doing more with less space. This could not only mean decluttering the office space but also doing away with the collaboration workspace for employees. For instance, a meeting room that would normally fit eight individuals might now only hold seats for four.
- With advancement in AI-driven technologies and robotics, more work will be done by smart machines. Virtual assistants would be there to respond to user queries in real time and perform operational activities.
- RPA would continue to automate repetitive tasks, data aggregation, analysis, etc., so teams can save time and make quicker, more informed business decisions.
- Cloud-based technologies will streamline workflow, facilitate collaboration and increase work efficiency.
- Organisational systems will be aligned to the cloud for improved data security.

How do you plan for a future of 'decent digiwork'?

With COVID-19, the workplace, as opposed to what we have known so far, is changing into a digital work environment. Some of the leading IT companies have already taken the leap by reportedly taking the decision to reduce the number of employees in the office to 25-30 per cent. This will be one of the tipping points to drive digital transformation of the workplace, and we shall be moving our working lives online – which will be the new normal.

Gig work, which involves working as a freelancer or on short-term contracts, will also play a pivotal role in the future of work for the flexibility as well as cost benefits it offers. We will be focusing on a balanced approach wherein only the required employees visit office while the rest connect digitally. We shall, at the same time, focus on strengthening the security posture and ensuring business-critical and client confidential data remains completely safe and secure.

Pradeep Chakraborty
pradeepc@cybermedia.co.in

—KARTHIK GANAPATHI
VP & MD, Honeywell

"SCALE AND RELIABILITY

Honeywell is a Fortune 100 technology company that delivers industry-specific solutions. These include aerospace products and services, control technologies for buildings and industry and performance materials globally. The technologies help aircraft, buildings, manufacturing plants, supply chains and workers become more connected to make our world smarter, safer and more sustainable. Here, Karthik Ganapathi, VP & MD, Honeywell Connected Enterprise, India, tells us more about the future of work

How are you facilitating digital work?

As a global pandemic spreads around the world, every industry is looking for ways to change how they work. This includes refineries, chemical plants and manufacturing facilities. Honeywell has deployed new software solutions that enable process operations to be monitored or even executed from remote locations outside of the plant facilities.

These remote options use the power of Honeywell Forge offerings to proactively detect issues and bring them to the attention of both the customer and Honeywell experts whether through intelligent wearables, video assistance training or access to on-call experts. Honeywell Forge is built on cloud technology with industry standard security and data features.

Honeywell is offering its diverse set of customers, from the oil & gas, refining, petrochemicals, chemicals, pharma, pulp, paper, power, mining and metals industries, solutions and a suite of other Honeywell Forge offerings to ensure complete visibility of the essential manufacturing processes, work continuity, remote testing and remote delivery of critical services.

Our solutions also enable remote operations from anywhere, patch/anti-virus updates and system security monitoring. In addition, we have an 'Expert on Call' solution which provides on demand remote collaboration over audio / video call through hands free wearable devices.

Honeywell is helping building operators to remotely monitor buildings and offer improved operations and occupant experiences. Honeywell recently launched its cloud-based, closed-loop, machine learning solution that continuously studies a building's energy consumption patterns and automatically adjusts to optimal energy saving settings. We are headed to a 'new normal' in the post COVID world. Honeywell is ready to serve its diverse set of customers with its state-of-the-art mobility and software solutions.

What are the solutions provided by Honeywell for improved productivity?

Every digital product offer that Honeywell brings to the market has a strong productivity improvement characteristic. This may come in the form of asset productivity, process improvement, or worker productivity. Honeywell Forge drives significant productivity improvements for our customers and brings an end-to-end view on productivity by incorporating AI/ML to create continuous learning systems and with the capability to provide close-looping of recommendations via mobility solutions.

First is the transformational impact on productivity via AI/ML to solve day-to-day operational problems. Industrial companies traditionally used rules-based decision logic in both manual and software driven decision making. Rapid advances in AI/ML and compute power are now enabling creation of learning models (algorithms that evolve/adapt based on new information) that help operators make better and more accurate decisions.

The AI/ML-based analytics solutions enable aggregating

> AS WE SEE THIS DIGITAL SHIFT TOWARDS MOBILITY AND ANALYTICS, COMPANIES NEED TO START EMBRACING STATE-OF-THE-ART TECHNOLOGIES THAT ALLOW FOR SCALE AND RELIABILITY

data, analyzing/modelling the data and training the data to mimic real-world observed behaviours and support meaningful outcomes. For industrial solutions, it starts with a 'historian' that aggregates time-series and event data. This data is fed into our analytics engine, which models the information using proprietary algorithms developed over several years combining data science and field operator expertise.

The insights are presented to the end-user, who takes specific actions and records those actions. The application has the ability to 'learn' based on these actions (model vs. human) utilising our proprietary AI/ML technology. Over-time, these actions will converge, improving the ability to provide accurate and rapid decision making at the operator level. Honeywell continues to find innovative ways to bridge the domain knowledge that exists within most organizations with learning AI/ML models in its Honeywell Forge solutions.

Second is the close-looping via mobility solutions. Industrial companies, with a majority of desk-less workforce, are already set-up to embrace mobility solutions. There are usually Standard Operating Procedures (SOPs) for each operator / technician to do a particular job.

How do the Honeywell solutions help?

Each job requires understanding the information (alarms, events), conducting a series of checks on an equipment or process, performing adjustments/change settings/replace parts, talking to experts, getting supervisor approvals, and closing the job. Some of these activities require on-site presence and some can be executed remotely. In the past, all of this workflow would have required the technician(s), supervisor, and expert (to physically inspect) to be on-site.

This entire "paper" workflow is now digitised, using secure digital worker assist solutions, which run on the worker's mobile device and also provides standing instructions for the job, interprets asset/process data, links to experts with through various chat capabilities, incorporates augmented reality features, and has digital logbook capabilities. With this, we only need the person doing the job on-site, while others work remotely. This automatically creates better tracking/tracing of the job performed and running detailed analytics to drive productivity improvements.

There are two key enablers that ensure the above is sustainable: One is security. The second is cloud infrastructure. Honeywell Forge is built on cloud technologies with the highest industry standard security and data features.

As we see this digital shift towards mobility and analytics, companies need to start embracing state-of-the-art technologies that allow for scale and reliability. The volume of data generated in any organization doubles every 3-6 months. Analytics systems need to be able to tap into this wealth of information to 'learn' and become more effective.

Cloud infrastructure enables the Industrial Internet of Things (IIoT) and offers the ability to rapidly scale in a secure manner. Cloud applications allow for secure remote access and enable the mobility and analytics solutions. These applications need to be available 'all the time' and cloud deployment ensures necessary availability and support. The market has spoken as well - Cloud has become ubiquitous in the past couple of years.

Pradeep Chakraborty
pradeepc@cybermedia.co.in

—MARSHAL CORREIA
VP & GM, India, South Asia, Red Hat

Red Hat offers open source solutions, using a community-powered approach to deliver high-performing Linux, cloud, container and Kubernetes technologies. We help you standardise across environments, develop cloud-native applications, and integrate, automate, secure, and manage complex environments with award-winning support, training and consulting services. Marshal Correia, VP & GM, India, South Asia, Red Hat, tells us more about the future of work

MORE APPEALING MODEL

How are you dealing with the Covid-19 situation? What plans have you put in place?

For us, the well-being and safety of our associates, customers and partners is our top priority. Red Hat is invested in helping our customers keep business continuity and we're relying on our people, processes, and technology to navigate the challenges that we all are facing during a pandemic.

We have a comprehensive business continuity plan down to the business functional level to make sure our customers can count on us through this crisis. We believe that responding to COVID-19 requires collaboration and transparency and have launched a global 'Here to help' initiative to support communities and our customers. We want to work with them and solve common business problems.

This crisis has also required many organisations to scale up capacity. Many of our customers across industries have deployed automation and management tools like Red Hat Ansible and Red Hat Insights have expressed better preparedness which has allowed their IT teams to focus on other important issues.

We are offering free 60-day trials of Red Hat Automation Platform that can automate up to 100 nodes, and with this initiative, we hope to help even more organizations to automate what they can so that they can keep their focus on the biggest priorities.

Similarly, now every Red Hat Enterprise Linux (RHEL) subscription will also include Red Hat Insights (Software-as-a-Service) product. Red Hat Insights give organisation's ability to predict threats to security, performance and stability across physical, virtual and cloud environments.

Many of the programmers and developers of our customers are working from home, away from their usual development environment. For them, tools like Red Hat CodeReady Workspaces, a collaborative Kubernetes-native development solution, will allow rapid cloud application development that will provide developers with a consistent, secure, and zero-configuration development environment.

The Red Hat Training & Certification is delivering live virtual training classes, extended timelines for using Red Hat Training Units and the exam window by three months for those who are not in a position to cancel or reschedule previously scheduled classes or exams.

How are you facilitating digital work?

We have learnt about remote collaboration and leadership through our open source communities over the years. As a result, we already have a strong remote work culture and our IT infrastructure has been built to enable this for both associate mobility and business continuity purposes. To cope with sudden additional load, we integrated additional capacity for VPN and single-sign on (SSO) infrastructure for users signing on from home. This included adapting to our delivery for new hire equipment, so new hires can get started right away.

At Red Hat, all our associates are available for virtual engagements with customers, partners and other ecosystem players. All our events across the globe have been moved to virtual platforms. To cite an example, we recently concluded our annual flagship event, the Red Hat Summit, which was redesigned for a virtual experience. More than 70,000 people registered for the Red Hat Summit Virtual event.

We also realise that a remote workforce requires a different communication style and even more engaged leadership. Team leads at Red Hat have stepped up to create virtual office hours and additional (but remote) face time with their teams--not just to convey the latest information and updates, but to check in with their teams and listen to their concerns or just keep the bonds strong.

How are the latest technologies going to redefine the workplace?

As organisations across the globe are trying to adapt to new ways of working and trying to define the new normal, they are presented with different challenges. While some are focused on adopting a virtual-first footing, there are some who are struggling with improving efficiency and productivity of their developers then there are some who are trying to push the boundaries of scaling to make remote workforce productive.

Organisations who have been embracing agile working like DevOps with infrastructure built on hybrid cloud, mobility for their digital transformation are better prepared to operate effectively during the pandemic.

While these current challenges are unfamiliar and new to all of us, customers are eager to accelerate innovation and digital transformation projects. Organizations are looking to selectively invest in tools and technologies like automation, cloud-native development, integration that gives them resiliency and robustness to adapt faster for such unprecedented times. I believe open source, subscription-based models will become more appealing in the times to come.

Pradeep Chakraborty
pradeepc@cybermedia.co.in

—RAHUL AGARWAL
CEO & MD, Lenovo India

ENTERPRISE WFH MANAGEMENT

Lenovo designs, develops, manufactures and sells PCs, tablets, smartphones, workstations, servers, electronic storage devices, IT management software and smart TVs etc. Here, Rahul Agarwal, CEO & MD, Lenovo India, talks to us about the future of work

How are you dealing with the Covid-19 situation? What plans have you put in place? Our key priority is to ensure health and safety of our employees all over the world, continuity of manufacturing, and assist those working to contain the outbreak in communities around the world.

Customers:

- We are staying closely connected with our customers to support their needs during these times. We are going out of the way to support critical customer needs in sectors like Software, Healthcare, BFSI, etc. by bringing in PCs on priority through chartered flights
- We have started offerings solutions such as smart fleet and Virtual Desktop Infrastructure (VDI) for better WFH management by enterprises
- On the consumer side, we are offering Learn from Home bundles with extended finance options
- We have also partnered with e-vidyaloka to create SmarterEd, a free online platform that matches learners with volunteer educators in one-on-one online learning sessions
- We are offering free services to all PCs (even from other OEMs) till 31st May, to ease pressure off the PC consumers amid the extended covid-19 lockdown.

Employees:

- Staying closely connected with our teams through daily calls and engagement activities
- We are also supporting employees by offering services such as remote doctor consultations and virtual fitness sessions

How are you assessing the learnings from enforced experiments around WFH?

Work from home was already a well-integrated policy within Lenovo. All our employees use laptops, so the lockdown transition was relatively seamless for us. However, the extended work from home has helped us make a few observations.

Remote working emphasizes the need for better cybersecurity. At Lenovo, we have a heightened responsibility to combat these increased security risks by leveraging new policies and technologies to keep their companies and employees safe.

Also, people on average spend 10 hours per week on the road, close to 20% of the time, which they now are able to save or spend for themselves. They also do not have to deal with the traffic, which is a plus point. The number of meeting hours also have considerably reduced, which gives everyone time to think of long term and strategic plans.

Overall, while there are clear benefits from Work from Home, I think it's early to make up our mind on this. I believe a balanced approach is the key, as human touch is also important.

This is a challenging time for managers. What advice would you give them?

Rahul Agarwal: First of all, uncertain times like these could lead to anxiety and increased stress amongst everyone. My advice to all managers is to keep calm and focus on things that are directly under your control.

Secondly, we are not a remote working country culturally, which forces the management to rewire their outlook towards employees working from home. Managers need to realize that good people work well wherever they are, as long as they have the right tools. So, my advice would be to trust your workforce and focus on output rather than activity.

Finally, managers should proactively model different scenarios of the market and create plans for each scenario to be better prepared.

How does work/life balance work in a crisis like this?

Our research found 61% of employees feel they are as productive if not more when working from home. However, in a crisis situation like this where employees also manage household chores along with work, it's not so straightforward to balance work / life.

A few tips to manage work/life better in these situations:

> WHILE THERE ARE CLEAR BENEFITS FROM WORK FROM HOME, I THINK IT'S EARLY TO MAKE UP OUR MIND ON THIS. I BELIEVE A BALANCED APPROACH IS THE KEY, AS HUMAN TOUCH IS ALSO IMPORTANT

1. Start your working hours as per the usual timings and create dedicated workspaces at your home to minimize distractions
2. Stay connected with your teams and encourage usage of video conferencing facilities for all internal calls
3. Communicate more with your teams and set expectations clearly
4. Effectively channelize the time saved from commute on personal development such as picking up a new hobby

How are you facilitating digital work? / How do you plan for a future of digiwork?

Future of digital work entails two parts viz., technology infrastructure and, a digiwork-ready employee base. We are facilitating and leading the shifts in both the areas:

Technology infrastructure: Through our wide-portfolio of cutting-edge PCs, Tablets and accessories, we are already enabling employees to work from anywhere. Our devices are also integrated with ThinkShield of suite of security offerings that make remote working safe. In addition to devices, we are also offering end-to-end services related to device management, thereby enabling hassle-free management for enterprises.

Digiwork-ready employee base: Gen Z and Millennials comprise ~60% of the workforce today and they are mostly comfortable with digital technologies. But as we head towards digital work, the key aspect to manage is employee emotions and one-on-one connect. This episode has given us multiple ideas on how to effectively stay connected during these times. We do daily video calls with our teams and launched multiple engagement activities to keep teams connected.

What are the solutions you are now offering for the Future of Work/WFH?

We offer vast portfolio of products and services designed to support our customers and employees working from home including:

- ThinkPad laptops at all performance levels and price ranges.
- Accessories such as a noise-canceling headset w/ microphone are useful for the many conference calls being conducted.
- For those who need increased computing power, like engineers, designers, architects and others, we offer mobile workstations and remote rack workstations that can easily access cloud applications, large datasets and ISV certified software.
- The Lenovo Travel Hub is a travel-ready productivity powerhouse, in short a One-stop travel docking point. Connect and charge your devices wherever you happen to be. It has six connectivity options to a single device.
- Productive pixel-perfect high definition FHD 1080P video conferencing with Lenovo 500 FHD webcam. It's easy to operate, and the functional mechanical mechanism creates an excellent user experience and provides Full HD user experience.
- Lenovo Professional Ultra-slim Wireless Keyboard Combo is made for maximum comfort yet slim enough to take up minimal space. It features a 2.5-zone ultra-slim keyboard at only 12 mm (0.47 in) thick with integrated rechargeable battery lasting for 3 months in 2.5 hours of charging time.
- Additionally, Lenovo offers a complete client virtualisation and virtual desktop solution including technical services to help customers get this up and running quickly.

Aanchal Ghatak
x-aanchalg@cybermedia.co.in

—RAVI CHHABRIA
MD, NetApp India

MORE WOMEN AT WORKPLACE

NetApp provides cloud data services, empowering global organisations to change their world with data. Ravi Chhabria, MD, NetApp India, talks about the future of work

How are you dealing with the Covid-19 situation? How are you facilitating the digiwork? What plans have you put in place?
During this lockdown, we have shifted our mode of operations completely online. Our secure Virtual Private Network, NVD (remote desktop), and other collaboration tools such as Zoom, Microsoft Teams, are all being monitored to maximize productivity.

The network security in such time has become even more important hence we have NAC (Network Access Control) at every endpoint. A multi-factor authentication approach has become our rule of thumb on a day to day basis to ensure maximum secure connectivity for our corporate infrastructure. We are constantly checking internet bandwidth and VPN tunnel utilization of our employees.

During these times predicting spikes or performance issues using Network and Application monitoring tools saves a lot of time and improves productivity. Our onboarding process for new employees was translated to a virtual one over one weekend. All the sessions that were being conducted face-to-face have been quickly converted to virtual sessions via Zoom.

Are you giving employees more control over their schedules?
Video and calls have made collaboration easier, but also put a stress on many remote workers. With kids at home, caregiving, household chores, we need to reinforce the need to take time off and designate work and relaxation hours. Work shouldn't be dreary or impersonal either - team birthdays to happy-hours, we are celebrating all possible occasions virtually. Teams are closer than ever before. Some have introduced family and pets to their teammates virtually.

We have well-being partners and coaches and they are conducting sessions on 'thriving remotely from home.' We offer counseling sessions via phone – anonymously, to employees and their families. We are lucky that we work for the technology industry and are able to bide this time as normally as possible.

How are you assessing on learnings from enforced experiments around WFH?
Being in the technology industry, most of us have had experience with work from home situations. Even so, initially some of us had a few hiccups in terms of ergonomics, internet connectivity, but two weeks in we saw how people set up home offices to become better. We offered ergonomic consultation with the in-house physiologist, and even home delivered some electronic accessories.

We learnt new ways to conduct both on-boarding of new employees and exit of those leaving. New employees were given virtual device access to help them connect from day one. We learnt that people are willing to go the extra mile to work together and get things done. Employees now send us screenshots of all the work and fun things they are doing. We learnt that we are a resilient lot, and that people find ways to do what they really want to do. Work from home is not a deterrent for producing some great work!

This is a challenging time for managers. What advice would you give them?
Managers are constantly in touch with their teams, maybe even more so than during normal times. We all found our way as guided by our culture. If that means some of us took an unscheduled crash course in remote leadership, we are not alone, and our human factor remains the same. We are sharing practical tips on how to stay productive while working with the family around. We have to remember that people are looking at their leaders to stay informed, motivated, happy - even comforted.

> WE MAY BE OVERCOMPENSATING FOR THE HOURS IN TRAFFIC, OR AWAY FROM IN-PERSON INTERACTIONS. WHILE IT IS IMPORTANT TO BE PRODUCTIVE, TAKING A BREAK FROM WORK IS IMPORTANT WHEN WORKING FROM HOME

How does work/life balance work in a crisis like this?

Work from home is changing our work hours. It could be tempting to stay put at your home-desk and send more emails, get more code written, and prove that we are more productive. We may be overcompensating for the hours in traffic, or away from in-person interactions. While it is important to be productive, taking a break from work is important when working from home. If it is ok to work-from-home, it is okay to take vacation-from-home.

How are the latest technologies going to redefine workplace?

All companies have been forced to re-evaluate their IT models and accelerate digital transformation efforts as employees move to a work from home model. So, technologies that support work from home are the number one priority. Companies around the globe have rolled out mandatory remote work policies, but not all have the right infrastructure in place to support the influx of users to end-user computing (EUC) and virtual desktop infrastructure (VDI) applications.

Number two: As more of enterprises move their daily lives online and employees' transition to remote work environments, companies are experiencing sudden influxes of traffic and data. This data needs to be proactively protected and optimized over a hybrid cloud infrastructure. So, you need tools that to give you visibility into your complete infrastructure—both in the cloud and on the premises—and to make critical adjustments quickly. AI for predicting and analyzing this data to make business as well as infrastructure adjustments is essential. With all this data moving through multiple end points, data protection is also the need of the hour.

Thirdly, application performance and availability challenges depend on where your apps and data live. Storage often plays the most critical role in application performance. Storage technologies that allow for rationalizing your data and application infrastructure, move data between on-premises storage and cloud, and help ensure data availability across clouds.

NetApp continues to invest in this space. Our recent acquisition of VDI superstar CloudJumper is an example. NetApp has deep product sets within analytics, like Active IQ, and data protection. All of this is going to come together over time as a complete vertically integrated stack. NetApp has the best possible solution – a true vertically integrated stack and solution for partners and customers.

How do you plan for a future of 'decent digiwork'?

As this way of 'digiwork' becomes more prevalent, it is shaping the future of work. Commuting and urbanization are two birds killed with the one stone that is work from home, but there is more. We think technology will shape and drive this, but really it is all about the people. In India we often live in large multi-generational families, with our elders and our kids.

Even as women are thriving in the workforce, they often carry a heavier burden at home, by way of housework and care giving. Now that work has moved to the home, people are learning and being forced to confront non-work obligations. This will change behaviour. Work situations that allow for home life balance, maybe even home-life integration, might be here to stay. That is a very good thing for a diverse workplace.

Pradeep Chakraborty
pradeepc@cybermedia.co.in

—RAJIV SODHI
COO, Microsoft India

—IRA GUPTA
Head-HR, Microsoft India

SAVIOUR IN TOUGH TIMES

Microsoft has a mission to empower every person and every organisation on the planet to achieve more. Here, Rajiv Sodhi, COO, Microsoft India and Ira Gupta, Head-HR, Microsoft India, talk about the future of work and Microsoft Teams

How are you dealing with the Covid-19 situation? What plans have you put in place?

Rajiv Sodhi: As we have embraced the new world of remote work and focused on keeping our families safe, lines between work and working from home have blurred like never before. At Microsoft, we moved thousands of employees to remote work overnight. At the same time, helping our customers and partners cope with the impact of Covid-19 outbreak and keep their businesses running has been a top priority for us.

Here is how we are supporting customers:

- **Working from Home**

  Organisations of different sizes and complexities across sectors are facing a variety of issues as they grapple with the situation. Transitioning employees to work from home in the initial days was a big challenge in the initial days. To support this, we made Microsoft Teams available free of cost in early March, including for organizations that don't have Office 365.

  Leading Indian companies have placed their trust in Teams, and are now using it for daily calls, meetings and collaborating virtually. We are also working with them to integrate their internal apps to Teams to make administrative processes absolutely seamless. Teams also helps deliver the advanced security and compliance capabilities our customers need - with the native built-in security and management capabilities of O365.

- **Access to Business**

  Businesses also need access to their applications to stay operational. Traditionally, sectors such as BFSI, ITeS and manufacturing have not equipped their employees to access work related content or systems remotely. Our team has worked round the clock to help ITeS giants deploy Azure Windows Virtual Desktop(WVD) This has allowed large workforces to access internal apps, develop and even publish solutions through a desktop hosted on Azure.

  They are doing so using different browsers from home PCs, laptops and personal mobile devices in an absolutely secure manner. Moving to Azure WVD also did away with the need to scramble for new devices, a relief at a time supply chains are broken, and retailers are shut.

  We are also focussing on helping pharmaceutical companies and their partners stay productive and keep medicines and critical supplies available. Intas Pharmaceuticals, a leading Ahmedabad-based drug manufacturer, uses Office 365, our collaboration platform, and our team helped them in rapid and successful usage adoption in the current situation. They have also adopted Windows Virtual Desktop, allowing their critical workforce to access internal content from home and support the company's operations securely.

- **Learning from Home**

  As educational institutes across the country moved to online classes, they were looking for secure collaboration tools to ensure that learning doesn't stop. Over the last few weeks, we have imparted training to over 4000 educators and students across 100 schools and higher education institutions to adopt remote learning tools. The British School moved to Microsoft Teams even before the COVID-19 lockdown started to enable its teachers collaborate and interact with students for online learning. Amity University, Noida, on the other hand, has moved 80% of courses online to Teams in two weeks.

- **Uninterrupted Care for Patients**

  We are humbled to be able to support healthcare professionals in this situation. Microsoft engineers are spending time with doctors and management at healthcare institutes to understand their challenges and requirements. Healthcare Global Enterprises (HCG), which specialises in comprehensive cancer care, has launched a Virtual OPD on Teams for 23 centers across India to provide uninterrupted care to its patients.

We are also helping Fortis Healthcare pilot a virtual consultation service powered by Teams.

- **Staying Secure**

It isn't about productivity alone – we are focused on ensuring that our customers and partners are working as securely as possible. An unprecedented number of people working from home using multiple devices and apps also means an increased cybersecurity risk. New challenges could include expanding deployment to additional devices, adjusting security policies to enable productivity from home, enabling BYOD, supporting broader SaaS application usage, securing sensitive data, and more.

At Microsoft, we put trust and security at the core of our technology – it is not bolted on. We are offering regular guidance and recommendations so that they can stay protected and unlock additional tools that are available for them. For example, connecting all applications and cloud resources to Azure Active Directory (Azure AD) helps ensure that employees have secure, seamless access to the tools and resources they need, from wherever they are. At the same, it protects these resources from unauthorized access. The single best thing companies can do to improve security for remote working is to turn on multi-factor authentication (MFA).

Longer term, security admins can also consider programs to find and label the most critical data, like Azure Information Protection, so that they can track and audit usage when employees work from home. It is also important to continuously track how remote working is affecting compliance and risk surface, and Microsoft Secure Score helps do exactly that. Using Microsoft Defender Advanced Threat Protection (ATP), on the other hand, can help identify attackers masquerading as employees working from home. For more information, you could also read Working remotely, stay secure - guidance for CISOs

Support from our partners It is also very inspiring to see our partners stepping up to offer solutions to support businesses. A few examples are:

- To simplify deployment of Windows Virtual Desktop further, Nerdio, a Microsoft partner, offers the Manager for WVD (NMW) solution, which allows IT pros and System Integrators to deploy, manage and auto-scale large WVD desktop environments in enterprises with ease.
- In an effort to help businesses run recruitment processes smoothly and safely, Talview is offering free support with their remote hiring solutions to their current customers and also any other businesses that are switching to remote hiring.
- **Yellow Messenger** is helping take the load off of overworked support teams with free WhatsApp chatbot provisioned in less than 24 hours.

This is a challenging time for managers. What advice would you give them?

Ira Gupta: Remote work can create challenges in maintaining a healthy work culture and managing the change. Like with every area of our life, leadership in uncertain times requires unwavering empathy and resilience. My learning has been that managers need to

> FREQUENT EMPLOYEE COMMUNICATION CAN PLAY A KEY ROLE IN ENSURING EMPLOYEES ARE HEARD, CONTINUE TO REMAIN ENGAGED AND ARE ENCOURAGED TO SHARE THEIR DO THEIR BEST WORK

create clarity in the face of an evolving situation, model the right behaviors, coach others through ambiguity and demonstrate care as they engage with their teams.

Frequent employee communication can play a key role in ensuring employees are heard, continue to remain engaged and are encouraged to share their do their best work. The leadership at Microsoft is frequently connecting with colleagues all over the world through live events, one-on-one conversations or informal catchups.

We are encouraging teams, especially leaders to organize no agenda meetings, to connect regularly with colleagues beyond work and encourage sharing of thoughts, ideas, experiences. Managers have a critical role to play in the engagement and success of their teams and we have invested in resources and trainings to support people leaders as they navigate these times.

This is a period of phenomenal change. We are all working in the new environments, juggling new, often competing demands, and trying to stay productive while also battling the stress of protecting our loved ones. As managers, being empathetic to the people we work with, understanding their unique situations and being open, flexible and inclusive are some ways we can continue to powerfully back our teams. I'm confident that taking a people-first approach is what will help us tide through this crisis.

How does work/life balance work in a crisis like this?

Ira Gupta: Remote work raises several questions. With no physical separation between work and home, how do we strike a balance? How do we continue to be accommodative and respectful of our co-workers' schedules?

For many of our employees, this change is also about being able to build new routines and habits as they adjust to working from home. To support colleagues through this transition, we've developed a guide to working from home, with tips to stay healthy, engaged and productive during COVID-19. Among other things, this guide includes practical examples to be more thoughtful about inclusiveness, particularly around virtual meeting habits.

Examples include encouraging colleagues to turn on video to feel more connected, making space for fun by using GIFs, stickers and emojis as a mode of expression, turning on live captions to be inclusive of colleagues with disabilities and slotting time for team celebrations. We've seen a number of our teams schedule no-agenda 'tea-breaks' on a Microsoft Teams video call. This helps virtualise the water cooler conversation that many miss these days.

We use Teams daily for chat, meetings, calls and collaboration. Now that we find ourselves working remotely, we've been able to stay productive because we are accustomed to a digital workspace. Every meeting is now a Teams meeting, often with video. As we rally to help our customers prepare for remote work, we've found that the ability to record meetings has become essential.

All attendees can access recordings of meetings they've missed and then listen in to the most relevant parts. We also rely on the Microsoft 365 environment to empower employees to collaborate through self-service creation of Office 365 groups or teams within Teams while ensuring appropriate security, compliance, and manageability are in place. At Microsoft, our top priority continues to be the health and safety of our people and we learn and adapt each day on how best to support each other as we navigate this together.

Pradeep Chakraborty
pradeepc@cybermedia.co.in

—RAVINDRA KELKAR
Area VP, Indian Subcontinent, Citrix

MANAGING DIGITAL WORK

Citrix offers digital workspaces that allow organisations to boost productivity, engage consumers and empower their people. With a flexible and secure platform, organisations can connect, collaborate and innovate anywhere—on any application, any device, any cloud, at any time.This is how the future works. Ravindra Kelkar, Area VP, Indian Subcontinent, Citrix, presents his view

How are you dealing with the Covid-19 situation? What plans have you put in place for your customers?

Many of our employees already had flexibility and choice of working from home when needed. The Covid-19 situation added the dimension of scale to it where almost the entire organisation was forced to work from home not as a choice but as a compulsion.

Whilst Citrix started preparing to address the situation from early January 2020 and had required confidence – what was important to usis that our employees, partners, customers and communities feel supported as we all work through this global crisis.We are very proud of how we have maintained customer satisfaction, business SLAs and employee productivity and wellbeing.

We maintain detailed business continuity and disaster recovery plans to ensure business-critical functions and services are able to operate normally during critical times. Our pandemic response plan specifically includes provisions for the safety of our employees, customers and suppliers, identification of business interdependencies and multiple recovery strategies such as remote working and workload transferring to geographically dispersed teams, among others.

That said, in order to help our customers keep their employees safe and operations running,we are also proactively reaching out to them to ensure their work from home readiness. Our help desk also remains available 24/7 for any such technical guidance.

How are you assessing on the learnings from enforced experiments around WFH?

Since the global shift to a remote working model, work is becoming increasingly flexible and businesses too are forced to adapt. The essentials needed to see through this pandemic from a technology solution's standpoint already existed – but many organisations are now rapidly adopting those faster than ever before. Although the pandemic has proven to be an unwanted catalyst for accelerating digital transformation, to enable this type of agility, many businesses are now realising the need for having a comprehensive business continuity plan.

Reliability, security and stability of cloudhave now become important elements of the remote operating process. Most customers will now look beyond short term solutions like VPN which lack scale, introduce complexity, have security related issues and short term fix of sending office PCs home to comprehensive Workspace solutions that address productivity, choice of devices for employees and on other hand security, management and performance analytics needs for IT staff. The work-from-home model has led organisations to now revisit their remote working policies and redesign them with a broader perspective.

How are you facilitating digital work for your customers?

Most organisations that have been using Citrix technologies were already prepared for such an event.

THROUGH OUR STRATEGIC AND COMPREHENSIVE BUSINESS CONTINUITY MEASURES, OUR FOCUS IS ON ACTIVATING UNTAPPED WORKFORCE AND ATTRACTING THE RIGHT TALENT ACROSS THE GLOBE IN THE LONG TERM

They scaled existing infrastructure to address the growing need for a larger number of employees operating remotely. Our digital workspaces have been instrumental in helping our customers ensure work as usual even during these times.

Through our solutions, our customers have always been mobile-ready. The built-in feature allows any domain-joined internal PC to become securely accessible to remote employees without a VPN. Multi-factor authentication to further protect from malware stealing passwords can also be enforced by IT. Our customers using our Cloud furthermore have the advantage of managing and scaling the control plane with no infrastructure.

How do you plan for a future of 'digiwork'?

Enabling employees to work from their homes using the applications and devices of their choice,while also maintaining the security of corporate systems and data, is no easy task. However, at Citrix, we've always been prepared for the future of work that is now digital. Leveraging our tools like digital workspaces, collaborative technologies and dynamic application control and delivery management has allowedour employees to connect and get work done from wherever they are in a secure and reliable manner.

Through our strategic and comprehensive business continuity measures, our focus is on activating untapped workforces and attracting the right talent across the globe in the long term. We will also continue to keep technologies like digital workspaces at the core of our business continuity plans, to help manage resources in ascalable and dynamic way that global business environments demand.

What are the solutions you are now offering for Future of Work / WFH?

Citrix has always been prepared to help customers on their journey to future of work. WFH/remote work and giving employees choice for anytime, anywhere and any device access has been a component of that.

To unify everything that an employee or customer needs to be productive whilst working from home or remotely, Citrix provides a complete range of digital workspace solutions. We've kept the critical three Cs: connectivity, communication and collaboration, at the centre of all our offerings.

Our SD-WAN has been instrumental in helping our customers manage the quality of service and bandwidth burst in a dynamic way as they leverage both private and public cloud. They've also tapped our application delivery control (ADC) solutions to allocate resources to our applications. Our Analytics for Performance has helped our customers determine the root cause of performance issues across their remote working infrastructure.

With Citrix, organisations have been able to empower people to work in a flexible and secure yet in an intelligent way, enabling them to deliver better business results even during these times. Our Digital Workspaces are how organisations boost productivity, engage consumers and empower their people. With a flexible and secure platform, organisations can connect, collaborate and innovate anywhere—on any application, any device, any cloud, at any time.This is how the future works.

Aanchal Ghatak
x-aanchalg@cybermedia.co.in

—SHREERANGANATH KULKARNI
Chief Delivery Officer, Birlasoft

DIGITAL IS TODAY A WAY OF LIFE

Birlasoft combines the power of domain, enterprise and digital technologies to reimagine business processes for customers and their ecosystem. Its consultative and design thinking approach makes societies more productive by helping customers run businesses. As part of the multibillion dollar, diversified, CK Birla Group, Birlasoft, with its 10,000 engineers, is committed to continuing our 158-year heritage of building sustainable communities. Shreeranganath Kulkarni, Chief Delivery Officer, Birlasoft, tells us more regarding how the company is looking at the future of work

How are you dealing with the Covid-19 situation? What plans have you put in place?

The COVID-19 outbreak is deeply concerning and we are aligned with the world's governments and health care leaders to ensure the safety and well-being of human lives while fighting this global pandemic. We are committed to supporting our customers' business and to providing continuity of service.

Birlasoft has formed a COVID-19 Leadership Taskforce that meets regularly every single day, to assess the current situation. We have established a WAR room for project teams to easily reach us and use the latest information to answer questions that arise from employees, customers and suppliers to ensure we have the best response and that we all stay connected.

Birlasoft has an appropriate Business Continuity Plan in place, and we will continue to take necessary steps to ensure the safety of our employees while providing support to our customers, during this time.

Are you giving employees more control over their schedules?

During these challenging times, we have implemented many employee-centric initiatives to ensure that employee take control on their schedules and keep up with high-priority tasks. Large teams have been divided into microcosms to ensure business planning and project deliveries encounter no suffrage.

With a 99.6% WFH metric, employees are being encouraged to take up critical tasks within their portfolios to ensure customer confidence remains un-wavered. All teams have agreed to scheduling their work between employees and clients to optimize the online collaboration and ensure sustain productivity. We, at Birlasoft, are seeing no drop in our service levels and have ensured zero disruption; all made possible due to our employees' commitment and drive to excel!

How are you assessing on learnings from enforced experiments around WFH?

The lockdowns and the enforced work-from-home scenarios have allowed us to introspect and dive deep into the perceptional value of such an engagement with our employees and customers too. We have realised that customers have been flexible to understand the concerns around COVID-19 and continue to instil trust within us.

Many of our teams are experimenting and mimicking various physical location dependent activities like meetings, events, celebration, E-connects via virtual platforms. Furthermore, we are seriously looking at balancing WFH with regular office routines, as this could become a new-norm and has its potential advantages too. This situation has given us all a few learnings around being empathetic, considering viewpoints, the importance of inclusivity and of course bringing each employee closer to each other to create a cohesive, visionary unit.

This is a challenging time for managers. What advice would you give them?

Managers are having their hands full, since teams are not in proximity. However, there's a noticeable shift within team members to be responsible for their actions and activities, even with no one around to monitor them regularly.

Managers are learning that these are extraordinary times and for remote-working to work to their advantage, trusting people is essential as it leads to greater accountability and outcomes, which are at times beyond expected. Thanks to this, every employee is championing the cause for Birlasoft and helping the brand keep up with its reputation of being a "challenger" and putting in extra efforts.

Rather than cutting any slack, the large and microcosm teams are working in sync, and providing great value. My advice to managers would be to continue doing what they do best and empower their team members to see the larger picture; where teamwork helps achieve their goals and strengthens customer's trust.

How does work/life balance work in a crisis like this?

The initial days of the lockdown did find people unaware of how to deal with work/life balance. The initial few days were a challenge, however if we introspect closely, there's only been a change in location. The balance between office duties and regular chores/gathering were always there.

Thankfully, our employees have managed quite well, and

are giving us great value, along with the ability of keeping their families happy. Teams have come to an understanding of each other's personal time, which is facilitating towards a better balance between life and work. Prioritization and planning are helping everyone in keeping motivation levels high and being safe and healthy.

What are the policy responses you would give to the MSMEs and SMEs?

MSMEs and SMEs are considered as the backbone of economic activity. However, due to COVID-19 worries of liquidity crunch, disrupted supply chain and a disintegrated labour force have cropped up. However, some relief measures have been announced by the Government bodies, along with some policy waivers to help MSME(s) and SME(s) get back on their feet, once the national lockdown concludes. It is heartening to see the Government helping the median industries during this time of crisis, who are major enablers of the supply chain for manufacturing organisations.

During this time, it is also important for these industries to stay in touch with their clients and employee base to explore newer ways of delivering services. It's a ripe opportunity to optimize the delivery structure, distribution channel and take a long-standing plunge towards accelerated product innovation.

How are you now facilitating digital work?

Digital is not an alternative/option. It is a way of life, and with the inclusion of new digital interventions, more and more digital natives will be born. If there was any doubt about digital work, COVID-19 and the lockdown has answered them all. As an organisation, it becomes equally important to empower our employees with the platforms and technologies to disallow any delays, mitigate risk and address challenges. Our IT infra and Infosec teams are working round-the-clock to update protocols and tech layers, to prevent fraud, data loss that could be a possibility during such a situation.

To ensure a secured workspace, all our employees and their work-related desktops/laptops are going through regular information security checks and are being provided safe and secure online collaboration platforms. Regular antivirus updates, system upgrades are being initiated virtually to put 'digital work' at the forefront.

How are the latest technologies going to redefine workplace?

If there is one important learning from COVID-19, it must be about the readiness towards digital transformation. Organisations who have invested wisely in transformative technologies and cloud, are finding it easy to adapt to the new-norm of work-from-home.

The early adoption of cloud-tech has led to redefine the term "workplace" and soften the hard impact of lockdowns and COVID-19 for new-age organizations. A serious look is being given at leveraging new technologies at the workplace, though Birlasoft has been at the forefront of implementing many such technologies at its premises via digital kiosks at entry points, automated RFID-based parking sections and network-enabled communication rooms.

But, it's important to take the next step towards implementing and educating the workforce on new technologies. Redefining the workplace can only happen when employees adopt technology with much vigor and hence our DigitalEdge programs, are helping towards supplementing, sustaining and enhancing employee experience, while keeping up with the trends of a modern workplace.

How do you plan for a future of 'decent digiwork'?

While digital does provide a leeway into the future of work, it's also important to note that a proper governance model must be in place to ensure that "digiwork" as a concept and its execution doesn't hamper the core values of an organisation.

The future involves adapting to the current norm of "working from home", which is an extension of the physical workplace ethics, and means that a sizeable part of the workforce of the future could be using WfH patterns as their first line of operation. Creating an ecosystem to facilitate digiwork will start by conforming to local IT and cyber laws, maximising potential of employees through a monitored digital framework, educating employees on digital platforms and easing their phase-in towards a workplace, powered by digital.

Just like how we empower our customers to reap the benefits of digital, the concept of digiwork can really take-off if we have the buy-in of people, robust processes and technological advancements that redefine the future of everyone involved.

Pradeep Chakraborty
pradeepc@cybermedia.co.in

—VINAY BHARATIA
India Head, Lark

SOLUTIONS FOR DIGITAL COLLABORATION

Lark combines video conferencing, online docs, cloud storage, calendar and more. It makes teamwork easy with top online collaboration tools. Vinay Bharatia, India Head, Lark, tells us more

How are you dealing with the Covid-19 situation? What plans do you have in place?

Today, every industry across the world is facing its own set of challenges and trying to adapt to the new norms of business. As a result, more and more organisations have started to use digital platforms to operate everyday tasks and conduct business continuity. As they continue to gain experience on such platforms to manage and execute their tasks, there is more acceptance towards them.

With Lark, we are empowering professionals and organisations to become productive and adopt new age tools and solutions. We emphasize on reaching out to more businesses across verticals that are looking out for best options for working remotely and can provide full office automation to make their work more productive, efficient and support them to smoothly transition to a remote working scenario.

With our robust outreach programs and multiple channel partners, we are building a loyal customer base by providing a dedicated customer success team, creating awareness around our platform while educating our potential customers through webinars/ workshops and engaging with influencers to highlight our differential offerings.

How are you facilitating digital work?

Looking at the current scenario, the lockdown will lead to a cultural shift in a way the businesses currently operate today. Today remote collaboration has become imperative for business continuity. Presently, we are facilitating digital work by helping people and businesses in need. Recently, we announced Lark suite being available for free in India. As businesses across the world are rapidly responding to the COVID-19 outbreak with initiatives ranging from travel restrictions, mandatory work from home and remote learning policies, Lark bridges the gap as a robust, easy-to-use collaborative and communication tool that helps people to stay connected.

The service is also extended for free to the individuals, businesses and educational Institutes including, schools, colleges and coaching classes across India, enabling remote working between teachers and students that will effectively and rapidly manage workflow.

Currently, Lark's free version comes with unlimited video calls upto 100 participants, (with advanced screen sharing), live streaming, 200GB of cloud storage, covert voice to text as message, supports localization for customers and markets, customizable attendance/approval workflows, etc. These features are all synchronized so there is no longer any need to juggle between applications to get work done.

How are the latest technologies going to redefine workplace?

With the ongoing lockdown, businesses across the world discovered the benefits of technologies that enabled us to communicate and collaborate remotely while maintaining social distancing. Remote collaboration proved to be beneficial as it is more economical and time-saving.

More and more small and large businesses are leveraging it and thus, making it a new norm. This is a cultural shift that we will witness even after the lockdown is over. During these challenging times, technology empowered people to achieve success in business continuity and their livelihood with online meetings, classes, lectures and sessions. Remote collaborative platforms have brought together people from different groups to work together to achieve desired goals across sectors and verticals.

Some of the technologies that will redefine the workplace are:

- **Digital communication –** The way we work is redefined today, digital communication tools such as video conferencing, chat, announcement and file sharing apps ensure that meetings across organizations are

WITH THE ONGOING LOCKDOWN, BUSINESSES ACROSS THE WORLD DISCOVERED THE BENEFITS OF TECHNOLOGIES THAT ENABLED US TO COMMUNICATE AND COLLABORATE REMOTELY WHILE MAINTAINING SOCIAL DISTANCING. REMOTE COLLABORATION PROVED TO BE BENEFICIAL AS IT IS MORE ECONOMICAL AND TIME-SAVING

conducted seamlessly without any glitches or delay. This will continue to happen as now we have experienced the benefits personally. Many SMEs will also gradually start video conferencing to conduct meetings, reviews, etc., and will get a competitive advantage over others.

- **Project management tools –** Project management tools help in better remote collaboration. Teams can collaborate virtually, share their ideas and get approvals on them seamlessly. These apps also come with to-do lists, calendars that keep track of meetings facilitating remote connectivity on another level.
- **Cloud computing –** It facilitates business to store data online which can be accessed from anywhere beyond the confines of the office walls. Cloud services are not new and have been here for some time and many organizations have invested in these to ensure a paperless office. Given the pandemic and remote communication and collaboration system, the demand for cloud services is further going to increase.
- **Office automation –** Office automation will lead to 'phygital' offices that will be a combination of digital and physical office space. With the tools available today business can fully automate their processes by integrating all the collaborative tools under one app making it a faster and more organized system. The way work is conducted and business will run will change drastically with a heavier reliance on these collaborative tools.

What are the solutions that you are now offering for Future of work/WFH?

Lark is an all-in-one collaborative platform that offers:

On Lark, various components of the suite (Messenger, Docs, Calendar, Video Conferencing, Workplace) are deeply integrated and this allows to have some unique features like Insert a group chat in a Doc, check team members' schedules right from a chat, launch a video call right from a calendar event. Also, Lark Workplace includes native, as well as customisable third-party integrations that allow organisations to unite internal workflows and in-house applications into one single platform. It is mobile-friendly as well - the work that is created and stored on Lark is synced in real-time across all devices

- **Affordability:** Lark is the only product in the market that offers an enterprise-grade collaboration suite for free, with no limit on duration/team size. When it comes to large companies that have special need for customised customer success service, Lark provides a paid enterprise version as well as value added services.
- **Advanced collaborative tools:** Users can make the best use of the features like instant messaging, smart calendar, Lark Docs and Sheets, and online space and drive. Users get the freedom of conducting video conferencing with up to 100 people with unlimited minutes and can also Broadcast live to your teams and external users with chat mode.
- **Safe and secured platform:** Lark has passed most of the certified security standards in the world, including ISO 27701, ISO 27018, ISO 27001, SOC 2 and SOC 3 certifications. We are now certified to ISO 27701, the international standard for Privacy Information Management.

Aanchal Ghatak
x-aanchalg@cybermedia.co.in

—ANKUSH SABHARWAL
Founder & CEO, CoRover

AI-BASED VIDEOBOT

Aanchal Ghatak
x-aanchalg@cybermedia.co.in

CoRover provides enterprise conversational AI platform to help businesses give authentic information to their customers' queries automatically and instantly. This can be in any language (foreign, vernacular), any channel (web, app, social media, IVR, SMS, email), any format (video, voice, text), so that users can save time and the organisations can save cost. Here, Ankush Sabharwal, Founder & CEO, CoRover, tells us more

Elaborate on how CoRover has been working on the conversational AI space

In the last couple of years, conversational AI has been a talk-trend amongst the majority of the companies. In the current scenario, most of them have started recognising its importance even more. Chatbots/VA is one of the most natural implementations of AI, which gives the benefit from day one of the implementation, and also reduces the enterprises' efforts in deploying humans to do all the work.

At CoRover, we have developed an innovative conversational AI platform to help businesses give quick, automated and authentic responses to the user queries and actions. The generated responses can be accessed in multiple languages (foreign, vernacular) on any channel (web, app, social media, WhatsApp, IVR, SMS, e-mail) and in different formats such as video, voice, and text.

With our platform, we help our customers in bringing down about 70% of the support efforts, and help them generate improved user experience and customer service along with reducing about 30% of the cost-overheads. Furthermore, our patented Chatbot Markup Language (CBML) and Chatbot as a Service (CaaS) make it extremely easy to integrate and access.

We have booked 300%+ more revenue as compared to last year while serving Indian Market. We are expecting 400% revenue growth this year as we have 150+ inbound leads being worked up at various stages.

Elaborate on AskDoc videobot. What are the general queries on Covid-19 and how has AskDoc videobot been useful so far?

The Covid-19 pandemic has caused a stir on each one of our lives, bringing uncertainty, psychological stress, health anxiety, social distancing, quarantines and financial stress with income and savings on a backburner. The healthcare community is doing an exceptional job in the toughest times. However, burnouts among the healthcare community are nothing but a serious cause of concern.

CoRover has evolved a videobot, an AI-based Doctor videobot, addressing the queries aroundCovid-19 disease transmission and contagion control, supported with multi-lingual voice and text formats. AskDoc provides its users with an auto and quick response to any queries about the Corona Virus, along with safety measures to be followed as per the MHFW, the Government of India and the WHO guidelines.

To help health workers manage burnout, CoRover's AskDoc helps users to know all about the COVID-19 pandemic by letting them interact with doctors for free.

AskDoc through a video, voice or text interaction can answer a user's anxious queries, such as "is there a vaccine, drug or treatment for Covid-19?" or, "how likely am I to catch Covid-19?', or, "is it safe to eat non-vegetarian food? The bot also provides information on the total number of active positive, cured and death cases in all the districts and states across India.

> USER CAN INITIATE QUERIES USING VARIOUS INTERFACES. OUR CHATBOT TAKES THESE QUERIES AND PASSES IT THROUGH VARIOUS LAYERS OF OUR FRAMEWORK

How long did it take to develop this solution?
It took us around three years to build a comprehensive and robust CoRover conversational AI platform. That makes it extremely easy for us to create text-, voice-and video-enabled, multi-lingual and omni-channel chatbots/virtual assistants. Using the CoRover conversational AI platform, it just took us a week's time to create the AskDoc.

How many people have downloaded and used this so far?
We have over 200 million users, 20 billion+ impressions, and are supported with 500k+ concurrent users. We are further working towards generating revenue through contextual ads, in addition to pay per user, subscription and license-based fee.

How are you handling the security aspect of this app? How does it make use of AI?
Microsoft Azure takes care of the security, reliability, performance and scalability. Our innovation in technology is the most unique property, which makes us a differential provider in the market.

The cognitive AI framework, which uses our patented AI in the most innovative way comes with various components, such as, AI auto-suggestion, AIML, NLP, ML, deep learning and proprietary, cognitive AI framework, which makes our product very easy to use. User can initiate queries using various interfaces. Our chatbot takes these queries and passes it through various layers of our framework as mentioned below:

- **AI Auto-Suggestion –** This feature compares the user's questions and maps it with the predefined questions. If the question matches the predefined questions, then the chatbot responds with the answer. Else, the query is transferred to the next layer.
- **AIML (artificial intelligence mark-up language) –** In this level, it simplifies the words in the question to interpret more efficiently. The AIML interpreters can provide pre-processing functions to expand abbreviations, remove misspellings, etc.
- **NLP(natural language processing) –** This level applies algorithms to understand the meaning and structure of sentences. Syntactic and semantic analysis are two main techniques used with natural language processing.
- **Unsupervised algorithm –** This layer uses historical chat log data (transcripts), without the need for any human labelling.
- **ML and DL –** In this layer the feedback data and question are collected, and the responses are updated through machine learning abilities.
- **Deep multitasking learning –** This layer brings the humankind of learning to the framework, and enables focusing on each word, sentence and previous sentences to drive deeper understanding all at the same time.

With the help of the above features, the chatbot will either provide the appropriate response or project a standard reply to modify the query or let users choose from the various options or open a live chat, where the customer can directly chat with customer care employee.

What are the prime verticals using this so far?
All the verticals are now embracing the AI virtual assistants. Some of the prominent ones, where we saw success, include travel, health care, BFSI, energy, education, utilities, media space etc.

Aanchal Ghatak
x-aanchalg@cybermedia.co.in

—ASHISH P. DHAKAN
MD & CEO, Prama Hikvision India

RISING DEEP LEARNING VIDEO SURVEILLANCE

Prama Hikvision India is a supplier of video surveillance products and solutions. It specialises in video surveillance technology and designing and manufacturing a full-line of innovative CCTV and video surveillance products. The product line ranges from cameras and DVRs to video management software. Since its inception in 2001, Hikvision has quickly achieved a leading worldwide market position in the security industry. Here, Ashish P. Dhakan, MD & CEO, Prama Hikvision India, tells us more about what it is doing in India and about the Indian video surveillance market

How are video surveillance systems going beyond surveillance and used for analytics?

Significant changes have shaped the security industry during the last decade and more exciting innovations should be expected in the 2020s. Emerging technologies and applications – such as multi-dimensional perception, UHD (Ultra High Definition), low light imaging, artificial intelligence and cloud technology – open new possibilities for the security industry. At the same time, millions of cameras and other security devices are being connected into networks, making the security industry a very important part of the future IoT world.

When it comes to delivering the insights for today's organisation, Hikvision is a pioneer in security and beyond. Hikvision's industry-leading video surveillance cameras and infrastructure solutions, engineered with AI technology integrate a range of tools to support smarter decision making, from people counting and facial recognition, to vehicle recognition and automated security alerts.

According to the latest Memoori Research report, AI technology will become mainstream. Significant improvements in AI video analytics software are making this possible. Over the next 10 years, it will become a standard requirement across video surveillance solutions. AI video analytics will be the number one game changer over the next 10 years in the video surveillance business, influencing the growth of most products that make up this business.

There is a new wave of video analytics, termed as deep learning video surveillance. Traditional video surveillance companies naturally see Deep Learning and AI as a feature to run off their existing products offering a way to both differentiate themselves and add further value to their products.

When it comes to crime prevention, how is it fulfilling customers' expectations?

Video surveillance systems and technology have moved beyond crime prevention. Now, it is enabling business intelligence solutions by resolving end customer issues. However, technologies like facial recognition, AI, deep learning, night vision, solar power integration and voice control greatly improve customer service. They provide a variety of solutions to the consumer, that range from smoke detection, heat detection, pressure detection, perimeter protection, heat signature monitoring for checking environmental pollutants to people counting etc.

Facial recognition protects assets by identifying repeat customers or potential perpetrators. Facial recognition when used in applications like retail is a perfect complement to an existing surveillance system, enhancing security and customer experience

in real time. Perimeter protection helps organisations to identify real threats by distinguishing people and vehicles from other moving objects and keeping false alarms to a minimum.

Multi-intelligence technology used in AI-empowered cameras can perform several intelligent tasks. Vehicle intersection is an example. Earlier, to streamline road traffic management, to detect vehicle types, license plate numbers and to protect sidewalks, there were around ten or more cameras installed at the intersection.

However, with multi-intelligence cameras, it requires merely two cameras which results in low equipment and installation cost, lower maintenance and management of the products. Hikvision's smart technologies are enabling business intelligence solutions through video surveillance data. It helps bank to protect employees, customers, branch offices and ATMs. It empowers retailers to understand footfall in their stores and optimise their merchandising strategies through people counting and heat mapping functions. There are advanced video surveillance solutions to guide city authorities to reduce congestion and pollution with smart traffic management solutions.

What is the current market size and the upcoming trends in the surveillance industry?

TheIndian video surveillance market has witnessed tremendous growth in recent years owing to rising security concerns, primarily arising from growing incidents of theft, domestic crime and acts of terrorism. Additionally, rapid infrastructural growth and reforms in the education and BFSI sector have also fueled the demand for surveillance solutions. Further, the growing trend of citywide surveillance is also contributing to the demand for such solutions in India.

According to 6Wresearch, the Indian video surveillance market size is projected to grow at a CAGR of 22.7% during 2019-25. Growth would be aided during the forecast period, primarily due to increasing government initiatives towards city surveillance and smart city projects.

Our market share is more than 35%. Due to various global cues and local factors the Indian security market grew at a 20% rate in 2019. The total number of professional video surveillance cameras sold in the Indian market is approximately 5 Crore (50 million) per year. The overall growth was pegged at above 25% by the year end.The big wins at the latest IHS report-2019 (No.1 in India and World) and A&S Security 50-2019 (Globally No. 1) has reaffirmed Hikvision's market leadership.

The emerging trends are as follows:

- **Rise of smart video surveillance:** The rise of smart video surveillance is evident. The IP video surveillance trend will continue to grow further.
- **Growing adoption of AI applications:** Among the key security technologies, artificial intelligence (AI) is

> THERE IS A NEW WAVE OF VIDEO ANALYTICS, TERMED AS DEEP LEARNING VIDEO SURVEILLANCE. TRADITIONAL VIDEO SURVEILLANCE COMPANIES NATURALLY SEE DEEP LEARNING AND AI AS A FEATURE TO RUN OFF THEIR EXISTING PRODUCTS OFFERING A WAY TO BOTH DIFFERENTIATE THEMSELVES AND ADD FURTHER VALUE TO THEIR PRODUCTS

the most trending technologies. The year 2020 will see a wider proliferation of AI applications into the video surveillance, access control, intrusion alarm and perimeter security and smart home categories.

- **Smart home applications:** The next wave of Internet of Things (IoT) trend will drive the platform-based approach for convergence of Smart Home applications, technologies and solutions. The year 2020 will witness the fastest growth for IoT based Smart Home security solutions due to enhanced security awareness.

Tell us about your manufacturing facility. How is Prama Hikvision gearing up to serve its clients better?

Prama Hikvision's 'Make in India' manufacturing facility is a remarkable milestone in its decade-long journey. We are committed to expand our Make in India mission further by manifesting the maxim: 'Made for India, Made By India, Made In India'.

The facility is India's first and largest integrated world-class security and surveillance products manufacturing facility. The facility was inaugurated in October, 2019 and has been built at an investment commitment of INR 500 Crore. The plant has a production capacity of 1.5 million cameras per month, and has been manufacturing a record number of products since its launch. The company is focused on building this facility and has plans underway to cater to the fast-growing domestic demand in a phased manner.

Currently, we have employed over 2,700+ skilled and semi-skilled employees in the plant. By the end of 2020, we expect the headcount to be close to 3,000 employees. We manufacture 50% of the components indigenously in the new plant and will gradually transition to 100% localization. Localisation is giving employment to more people in India and will gradually transform India into a global design and manufacturing hub.

We are in discussions with the various state police authorities and paramilitary forces. We, at Prama Hikvision, offer Body Worn Solutions as a part of Hikvision mobile enforcement system. They have been field-tested and proven in critical, on-the-ground applications. This solution is a perfect fit for Homeland Security Forces, which includes Police, CISF and CRPF, etc. The Hikvision body worn camera is a highly integrated device mainly designed for security and law enforcement.

How are you working for the safe city?

We are working in the video surveillance domain with technology innovation through R&D initiatives. Hikvision has brought in many new technologies (AI, deep learning, AI cloud, IoT and Big Data) to the forefront of the smart city and safe city domains.

These latest products and solutions include AI-enabled DeepinView Cameras and DeepinMind NVRs, AI cloud, AI-enabled face recognition terminals and swing barrier gate, smart pole, emergency call switch, AI technology applications (face recognition, people tracking, perimeter protection), intelligent traffic management solutions and mobility solutions, access control solutions, intrusion system, PanoVu cameras, walk-through metal detectors, interactive screens, etc.

Apart from the latest products and solutions, the 'Make in India' initiative has given a major boost for Hikvision products in the Indian market. The successful foray into the 'Make in India' manufacturing plant by Prama Hikvision has significantly reduced the total cost of ownership in the Safe City and Smart City projects.

Pradeep Chakraborty
pradeepc@cybermedia.co.in

—GERD HOEFNER
MD & President, Siemens Healthcare

MEETING THE NEEDS OF PATIENTS AND PROVIDERS

Siemens Healthineers India enables healthcare providers to increase value by empowering them on their journey towards expanding precision medicine, transforming care delivery, and improving patient experience, all enabled by digitalising healthcare. Here, Gerd Hoefner, MD & President, Siemens Healthcare, talks about transforming the future of healthcare in India

Can you share your thoughts on a paradigm shift that you have you noticed in the global healthcare industry?

Digital technologies are transforming many industries, and healthcare is one of them. Digitalisation of healthcare is the paradigm shift and the way forward. From generating, aggregating, and analysing data, digital technologies are increasing value and improving medical outcomes at reduced costs.

With agingpopulations, the growing prevalence of chronic diseases such as diabetes, and ever-increasing healthcare spending, healthcare providers around the world are under pressure to deliver more and better care within limited budgets. While talking to partners, we have realized that digital technologies must meet the needs of patients and providers alike.

For instance, enabling remote monitoring of patients, giving individuals knowledge and ownership of their own health and wellness, increasing accuracy, standardisation, and efficiency, facilitating seamless communication among providers and health systems and leveragingAI to integrate and analyse large amounts of data.

What are Siemens Healthineers' key India contributions vis-à-vis products and platforms built out of India?

At Siemens Healthineers, we contribute to the development of products and solutions of all businesses. Some of the products include syngo, the advanced visualization (AV) solution for medical imaging, Cios Fit, a multidisciplinary mobile C-arm with powerful imaging technology, teamplay, a digital health platform that enables the digital transformation of healthcare providers. In addition, our AI-Rad companion platform is an AI-based software assistant for image reading, and AI-Pathway Companion platform supports clinical decision making based on AI.

What is Siemens Healthineers' role in helping healthcare providers in increasing value by expanding precision medicine, transforming the care delivery, improving the patient experience, and digitalizing the healthcare?

Siemens Healthineers enables healthcare providers to increase value by improving medical outcomes at reduced costs.

We achieve this by:

- **Expanding precision medicine** by integrating relevant patient data and insights for precise diagnostics and tailoring therapy, ensuring the right treatment for the right patient at the right time.
- **Transforming care delivery** by automation, standardization, and optimization of clinical pathways at departmental or system level.
- **Improving patient experience and outcomes** by optimising the diagnostic experience using the patient-friendly technology, reducing waiting time and travel needs.
- **Digitising healthcare** by generating high-quality medical images and analysing laboratory and operational data to create actionable insights, using analytics and artificial intelligence.

Can you explain how AI-based software assistants designed are helping radiologists interpret medical imaging examinations?

We have introduced software assistants based on AI that are designed to free radiologists from the burden of performing routine activities during medical imaging examinations. Our AI applications help healthcare practitioners in the following ways:

- Automating and standardising examination procedures in radiology. For example, to optimise organ dose and image quality of CT examinations, special attention must be paid to correct patient positioning. We have a workflow that helps radiologists and technicians precisely position their patients.
- To increase workflow productivity, we have designed a remote scanning assistant enabling a higher level of standardization for more accurate diagnoses and improves facility productivity in case of personnel shortages.
- To support image reading, we have designed AI an AI-based software assistant. It automatically highlights anatomies and abnormalities of multi-organ areas, including incidental findings and transfers results in structural reporting.
- To support clinical decision making, we have developed an AI-pathway companion platform. It integrates relevant data to facilitate diagnostics and therapy decisions along the clinical pathway and supports personalized diagnostics and therapy decisions.

How is Siemens Healthineers shaping the future of healthcare and targeting to become the "GPS of healthcare"?

We want to be the GPS of healthcare that leads the patient to the best possible health outcome with the help of the medical system. Digital innovation and artificial intelligence are one of our strategic focus areas. We're already in a strong position with 45 products that employ the methods of artificial intelligence at their core.

The new advances in connected MedTech expanding the horizon of healthcare digitisation, in which cutting-edge analytics software and AI is helping doctors and hospital managers make more accurate diagnoses and better treatment decisions. Huge volumes of data are flowing into the cloud not just from doctors' offices and imaging centers, but also from remote devices and sensors worn or operated by patients. The data is helping care providers to improve effectiveness and efficiencies.

> HUGE VOLUMES OF DATA ARE FLOWING INTO THE CLOUD NOT JUST FROM DOCTORS' OFFICES AND IMAGING CENTERS, BUT ALSO FROM REMOTE DEVICES AND SENSORS WORN OR OPERATED BY PATIENTS. THE DATA IS HELPING CARE PROVIDERS TO IMPROVE EFFECTIVENESS AND EFFICIENCIES

Digitisation is also transforming the healthcare processes and business models, thus enabling healthcare providers to expand precision medicine, transform care delivery and improve the patient experience. It is largely about harnessing the vast amounts of data and putting it to work in applications.

One of our goals is to arrive at the digital twin of the body. A digital image, for example, of the heart allows us to simulate a surgical intervention or a new line of treatment. It will benefit doctors and patients by significantly improving outcomes.

What is your vision for transforming the Future of Healthcare in India with technologies like AI, AR/VR, Holograms etc.?

At Siemens Healthineers, our main focus so far was using augmented reality for education and training of medical staff. But now we are also looking a little bit further. We are working on combining augmented reality with our Cinematic Rendering technology. By blending holograms with the real medical world improves communication with referrers and patients and also offers opportunities to enhance presurgical planning.

With the visualisation of cinematic mixed reality holograms – the benefit for care providers is the interaction that they didn't have before. For example, while studying parts of patient anatomy, they can zoom in, zoom out, enlarge regions of interest, rotate around it, and also slice through. So, they can see the pathology. Imagine, instead of doctors examining clinical images on a 2D monitor, they can now explorethe patient anatomy in 3D, 4D space right in front of them, and this is a complete game-changer - it brings images to life.

Siemens Healthineers has created 'The Facebook of MedTech' to bring together healthcare professionals to create advancement in medicine in a team effort. Can you explain this?

Our device neutral digital health platform, Teamplay, connects data, people, institutions, systems and applications. It provides easy access to solutions for operational, clinical and shared decisions support and fosters cross-departmental as well as cross-institutional interoperability, while supporting the digital transformation for healthcare providers and MedTech companies.

Teamplay enables IoMT (Internet of medical things) with more than 5,000 connected institutions and 23,000 connected systems in over 60 countries, and already provides the technological infrastructure for already more than 10 million patient records.Users benefit from a broad experience in connecting devices and systems, in aggregating data from various sources, and in providing advanced analytics to gain actionable insights.

It offers a comprehensive portfolio of digital applications and software solution of Siemens Healthineers as well as applications from many value-added partners. These innovative solutions enable healthcare providers in making more informed decisions along the entire patient pathway - helping hospitals and clinics to streamline their operations management, supporting diagnostic and therapeutic decision-making or connecting care teams and patients with patient management solutions.

Teamplay makes healthcare providers future-ready by offering innovations in digital health, including AI, and has been majorly developed by our teams at development center in Bangalore.

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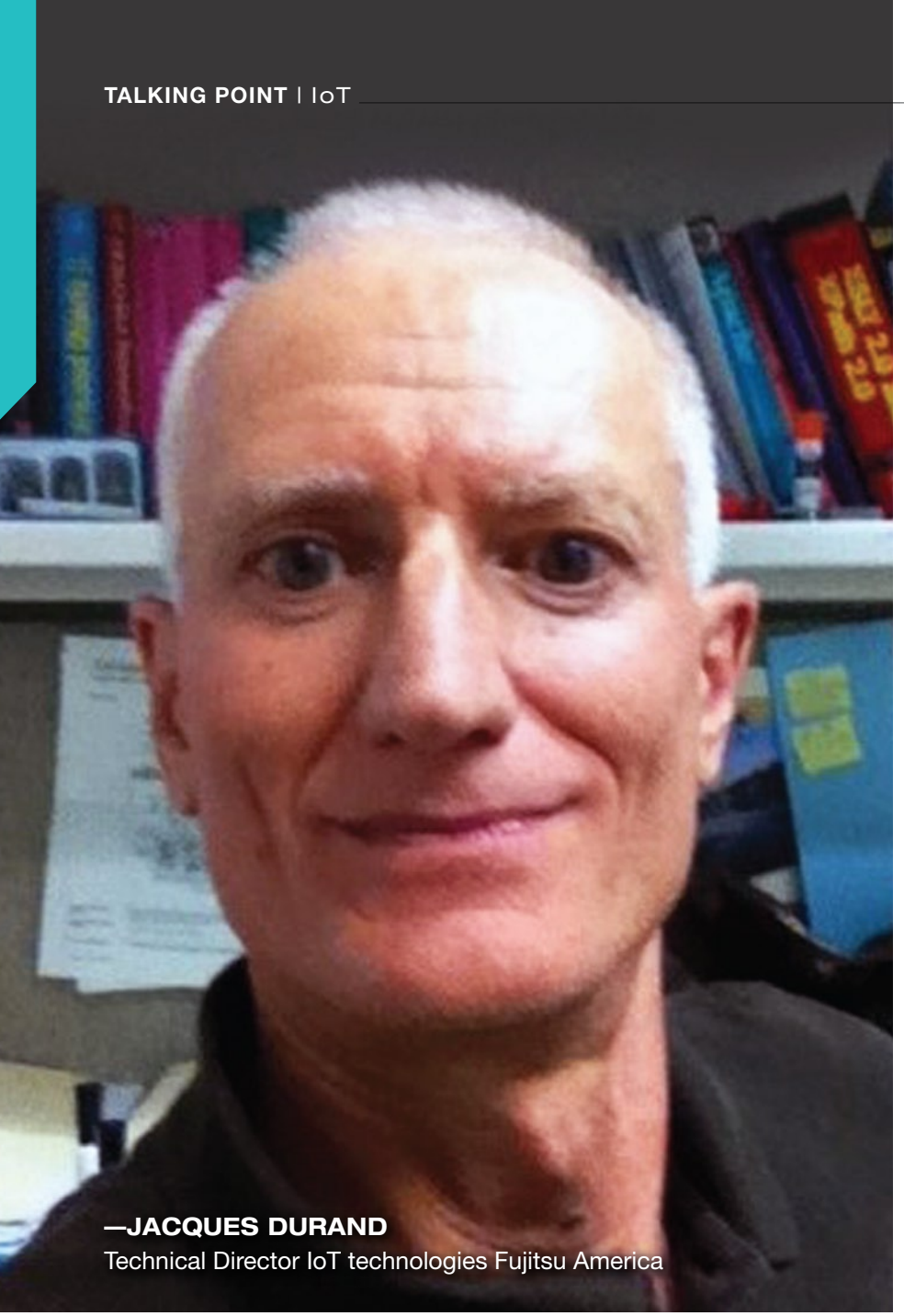
Pradeep Chakraborty
pradeepc@cybermedia.co.in



—JACQUES DURAND
Technical Director IoT technologies Fujitsu America

ENABLING INDUSTRIAL DIGITAL TRANSFORMATION

The Industrial Internet Consortium (IIC) transforms business and society by accelerating the adoption of the Industrial Internet of Things (IIoT), announced the publication of the Enabling Digital Transformation with IIoT Performance and Properties Measurement White Paper. Written for all IIoT stakeholders, the White Paper explains why measuring the efficiency and efficacy of industrial digital transformation solutions across industries is essential. Jacques Durand is Technical Director IoT technologies Fujitsu America and Member, Steering Committee, the Industrial Internet Consortium (IIC). Here, he discusses the White Paper

How essential is measuring the efficiency and efficacy of industrial digital transformation (DX) solutions across industries today?

KPIs and performance measurements are not new, but a culture of measurement becomes essential for DX solutions. In many cases, DX is about transformations taking place in an existing industrial system that has already its established processes. A proposed upgrade is in the challenger position: there will be uncertainty on the value, concerns about risks, skepticism and resistance. A consensus between the different stakeholders involved in a DX solution can only be reached based on some measurable agreed-upon objectives.

Assessing "efficiency" has several dimensions: while improving performance of a particular operation or quality of its output (speed, productivity, throughput, error and defect rate, etc.) may be at the forefront, other aspects need be measured as well. These aspects have their own objectives: non-functional properties such as security, safety, robustness, flexibility. These properties are harder to evaluate, and take more time. Finally, the impact (or "side effects") of a solution on other operations must be assessed as well. Only then can we assess in a well-rounded (a well as consensual) manner the value and viability of a solution.

There is an investigation side to deploying DX. The case for digital transformation is rarely clear from the start. Digital solutions rely on the recent or emerging technologies that may or may not work for the situation at hand. A problem to be resolved may be agreed upon, but its causes may remain obscure.

An investigation may be necessary to understand these (Kaizen process in Japan). Collecting IoT data on various parameters of a process/product to improve, including its context (e.g. who is operating this machine, what is the inventory of parts to be used) , then correlating these with actual performance/quality variations has been observed to speed-up this research phase.

In several instances, a solution or technology has been used with success in other places by other users. Even if a solution is replicated, there are many parameters and requirements that are different from one implementation to the other. We have observed in IIC that one size does not fit all: every case is different and needs to be adjusted, based on measurements and targets specific to this case.

How can one objectively assess what works and what does not?

That is where metrics and targets need to be precisely defined. These are two different but complementary things. You may set a target of 98% of service uptime per month, but for this to be meaningful you need to define precisely what a downtime is: do we count as downtime a case where the cause of disruption is external and not the responsibility of the provider?

Does a service degraded beyond some threshold (e.g. acceptable response time limit), qualify as downtime? Should downtimes not be measured during scheduled maintenance periods? Significant differences exist between the providers of a same type of service based on such details.

The definition of a metric includes more than the quantity to measure. It includes all the modalities and the precise conditions of the measurements to be made. Only then, defining targets for these metrics is meaningful. The process of defining these metrics and their targets is not accessory: it leads to a deeper thinking of what people really want and value. Without this, some stakeholders will always see the glass half empty and others will see it half full.

Only after defining the metrics that capture the different aspects of a solution and their targets, can all parties (stakeholders) interested in a solution get a common, non-ambiguous understanding of their goals and of what is defined as "success."

Finally, "what works" is not just defined by the improvements sought in one area, but also by assessing and minimizing undesirable side effects. Is the introduction of a new technology or of a process change, creating troubles in other parts of the system? Will the proposed solution still prove valuable over time beyond a successful initial demonstration, after it is deployed in real conditions? This kind of assessment relies on measures done over time after the solution is deployed.

How do you determine the best practices for developing and deploying IIoT solutions?

We believe that this has two facets. We assume here that IIoT is understood as an essential part of digital transformation:

a) Best practices for technologies supportive of IIoT and more generally DX. These are often emerging technologies that are mature enough to be deployed

(such as AI, real-time analytics, digital twins, time sensitive networks), although still evolving. Yet, these are still lacking best practices for their usage in industrial or business conditions.

b) Best practices for developing IIoT systems. Systems supportive of digital transformation come in many shapes and forms. Different requirements dictate very different architectures, even if they involve similar technologies. The IIC has identified some architecture patterns for IIoT systems, and is now attempting to associate best practices to these, by developing a tool ("project explorer) that captures the profile of an IIoT solution by collecting requirements along a set of indicators, such as the expected type and volume of data, the characteristics of physical assets to be connected, or the networking constraints. These indicators require their own measures to be established (these are useful to assess the initial profile of a solution, but also to track how the solution is evolving over time after deployment).

Establishing best practices for both of these IIoT aspects was a primary motivation behind the testbed program in IIC. In short, closely monitoring a well-rounded set of pilot projects is in our view the best way to collect such best practices. Another source is the collection of case studies and use cases from IIC members and partners.

Will the process or product enhancements empower the digital transformation journey or create risks for it?

Risks come with an incomplete awareness or capture of unexpected side effects and undesirable impact of deploying a solution. Some trade-offs will need to be managed: the operational expectations that motivate DX are relatively easy to formulate: performance, throughput, productivity, cost reduction, response and lead times, defect or error rates.

Yet, an understanding of adverse effects is key to the long term viability of a solution: are there undesirable side effects, unexpected operating costs, overhead, disruption, rigidity & fragility of a process, and other risks tied to personnel (skills needed to operate or maintain a sophisticated system, loss of human expertise with automation)?

Establishing the right metrics to capture both positive and negative aspects is crucial to controlling the impact of DX choices in a complex environment. Also, the context of DX solutions is evolving over time. Requirements, objectives and constraints may change. Not recognizing this is another source of risk. Measures are needed to validate performance over time. Continuous assessment (outcome evaluation) of a solution is expected.

Finally, non-functional properties of a solution deserve attention up-front: scalability, manageability, and more importantly those defining the notion of "trustworthiness" for which the notion of risk has been well defined: security, safety, reliability, resilience and privacy. Objectives for these have to be stated and managed, and these may conflict with operational objectives. Again, trade-offs need to be managed (see: "managing trustworthiness in practice…"). Metrics and targets are an important tool to manage these trade-offs.

> ESTABLISHING THE RIGHT METRICS TO CAPTURE BOTH POSITIVE AND NEGATIVE ASPECTS IS CRUCIAL TO CONTROLLING THE IMPACT OF DX CHOICES IN A COMPLEX ENVIRONMENT

What are the gains in efficiency or efficacy, and are they worth the investment costs and process changes?

The gains expected for a DX solution include well-known business indicators or KPIs. However, in an industrial context such as manufacturing, DX solutions are often about improving existing operations, and are expressed and judged in operational terms: speed, lead time, productivity, throughput, personnel error rate, product quality and defect rate etc.

Because operation personnel are the first line of experts to make or break the success of a solution, these operational goals deserve a lot of attention, more than financial indicators, which often come too late in the process to inform agile decisions.

Again, it is essential to track both the positive factors in a solution (the improvements we seek) and the negative aspects (costs and risks of all kinds, related to process changes). These effects are harder to assess and may need to be measured over a longer period of time.Also, non-functional properties and their objectives need to be documented, and tentatively measured (metrics, targets) although that is harder and often requires a longer period to assess.

What are the metrics for performance as digital transformation solutions evolve in complexity, interdependency?

System complexity and interdependency are managed with an architecture based on sub-systems and the use of services, often shared and managed by 3rd parties. The contractual aspect between parties or between components/services – either technical or business-like such as SLAs – becomes important.

When a service depends on underlying services, committing to its quality is only possible if there is a clear understanding of the quality of the underlying service. We see IoT solutions relying on a 3rd party data collection system usable by all kinds of smart city applications. For example smart cities where all monitoring data about traffic, road condition, parking and transportation schedules, is collected through a separate platform and offered as a service - a data marketplace – to an open-ended set of applications that provide services consumed by end-users (citizen and city agents.)

So, the metrics for performance will not change much on the end-user side, but metrics for subcomponents and underlying services become important to establish these contracts, whether internal to a system (to control the behavior of components) or commercial for example to obtain some assurance on the availability of a cloud service.

What happens after a deployment is changed, or a new, better solution replaces the existing one?

Changes are expected over a solution lifecycle. The new solution needs to be monitored and evaluated. The metrics used for the initial solution can serve as reference, although they (or their targets) will need to be adjusted. It is important to monitor the adverse effects of a solution upgrade and to ensure that they are acceptable. Only then can the solution be said to be "better" one.

As a solution always evolves over time (or its context is changing thus requiring an evolution), it is useful to keep a record of the solution performance in relation with the context of the times. A record of adverse effects (or of the absence of these) should be kept as well, so that the personnel in charge of deploying the new solution knows what to pay attention to. Again, metrics – both their definitions and their monitoring records – are very helpful to keep track of this history.

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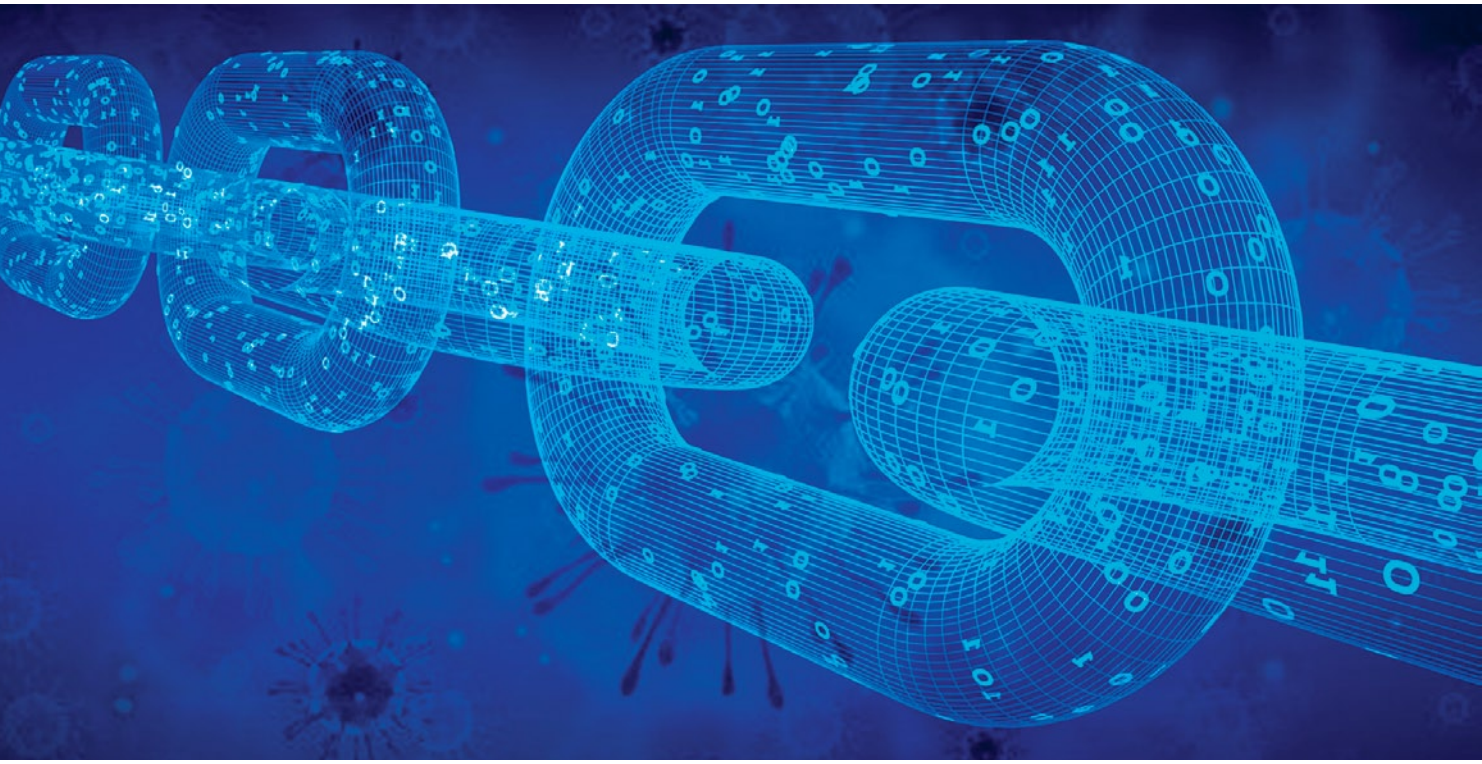
Blockchain and Corona

Today this COVID-19 crisis makes me wonder, that if we had a blockchain based real time reporting of Communicable Diseases, maybe we could have avoided a pandemic?



Biggest challenges for Communicable Diseases

There are two major challenges with communicable diseases:

i. First in today's globalised world, communicable diseases are extremely hard to contain. They spread like wildfire and moves across political and geographical boundaries at ease, infecting people across countries.

ii. Secondly, there is a huge social stigma around Communicable Diseases even today. Human being by nature is a social animal and the idea of being separated from fellow human beings is scary to all. So there is a tendency to hide. This tendency is further aggravated by the fact that most people do not respect privacy. Maintaining privacy in case of sharing information about communicable diseases is of utmost importance.

How did COVID 19 start, spread and then become a pandemic?

While there are various opinions about this matter and many conspiracy theories are floating around, lets for now just consider the proven cause. The disease started from the wet markets of Wuhan, China, where live and dead animals and birds are sold daily. The virus most likely has originated from Bats, but since bats are not sold in that market, the scientists think that the bat must have bitten a bird or animal that got sold in the Wuhan wet market.

This much we have seen many a times when any new disease hit us. But then what's different with this? How has this virus brought the world to a standstill? We have seen it's more dangerous cousins, MARS, SARS etc., but they didn't bring the world to a standstill. Then why Covid 19? The difference is that it's very highly

IN THIS CASE, HAD THERE BEEN A BLOCKCHAIN WHERE WHO, HEALTH MINISTRY OF EACH COUNTRY AND MAY BE EVEN RELEVANT NODAL HOSPITALS OF EACH COUNTRY, WERE CONNECTED, SHARING REAL TIME INFORMATION, ABOUT ANY NEW COMMUNICABLE DISEASE, THEN THE WORLD MIGHT HAVE WOKEN UP MUCH EARLIER

contagious, much more than its close cousins. So when one person got infected, he started infecting many in a day and each one of them infected that many and very soon there were thousands of people in Wuhan who were infected. Since the symptoms are typically like simple flu, people continued to travel and China missed sending the warning to the rest of the world and did not restrict travel to and fro. So, international travellers kept on coming to China and vice versa. More than a month went by before the world woke up to realize that this is a serious threat and by then the disease has already spread to many countries like Italy, Spain, UK, US, Iran and a few others too.

And then while the news of Wuhan epidemic as well as the challenges in the other countries came out, travel was not restricted. It took a couple of more weeks for the travel restrictions to start and by then the virus has travelled to 20 odd countries. Now the world really wakes up and every country starts taking measures to do lockdown by restricting travel and also taking various other measures to reduce spreading of the virus within the country. But by then it's a pandemic. The entire world gets introduced to a very different challenge, business suffers, stock market tanks across the world, many people lose their jobs, not to speak of the enormous loss of life and pressure on the healthcare system of all affected countries.

Could Blockchain have helped the situation?

As we all know, with Blockchain we can share any transaction/ information, real time, between relevant parties present as nodes in the chain, in a secure and immutable fashion. In this case, had there been a Blockchain where WHO, Health Ministry of each country and may be even relevant nodal hospitals of each country, were connected, sharing real time information, about any new communicable disease, then the world might have woken up much earlier. We might have seen travel restrictions given sooner, quarantining policies set sooner and social distancing implemented faster. And may be fewer countries would have got impacted.

What every country is doing now fighting this pandemic, would have been restricted to fewer countries and in a much smaller scale. The usage of a Blockchain to share the information early on, might have saved the world a lot of pain.

Why Blockchain?

The top five advantages of Blockchain technology are:

- Greater transparency
- Enhanced security
- Improved traceability
- Increased efficiency and speed
- Reduced cost

Aren't they all supremely important for reporting cross-border Communicable Disease cases?

The world had not seen anything like this Covid 19 pandemic before. Today we need to take a hard look at the reporting infrastructure available for communicable diseases, both technology and regulations and improve upon that, such that we do not need to face another pandemic like this in the future.

But of course Blockchain, in this case, like any technology is not a solution, it's just an enabler. An enabler that would ensure the security and efficiency needed for sharing something so sensitive. Finally it would depend on the goodwill of people and governments.

Wish we come out of this crisis soon and as unscathed as possible!

(The author is Co-founder, Ventures)

Arun Karna
maildqindia@cybermedia.co.in

Tackle **Corona Effectively**

AT&T is at the forefront of helping the enterprise workforce shift from face-to-face communications to mobile and WiFi-based solutions

We are in this together! This common phrase is reverberating across the globe as countries, communities, organizations, families and individuals battle this unprecedented human crisis. The business challenges brought about by the Covid-19 outbreak have also been unprecedented, and communication networks and collaboration tools have emerged as a critical lifeline for companies of all sizes.

OUR EFFORTS TO HELP OUR CUSTOMERS ENSURE BUSINESS CONTINUITY AND EASE THEIR BUSINESS RECOVERY ARE BASED ON THREE MAIN PILLARS

— Arun Karna, Managing Director and CEO, AT&T Global Network Services India

As a global enterprise, AT&T has extensive experience in planning for and responding to a wide variety of challenges. We are acting in line with WHO recommendations to help maintain the health and safety of our employees and customers as the coronavirus crisis unfolds. At the same time, we are closely monitoring the business community's response and ensuring that our network continues to perform well, even as the how and where of business communications changes dramatically.

You can be sure that we are here to support you as your workforce moves to a remote environment. Our network is software-centric, intelligent, highly automated and monitored 24-7 by our Global Network Operations Center. This can help reroute data as needed and switch on services almost instantly, while scaling in response to demand and quickly addressing any security concerns.

Our efforts to help our customers ensure business continuity and ease their business recovery are based on three main pillars:

- **Stay connected and productive**

  With most of our customers have rapidly introduced work-from-home arrangements for their workforce, we have stepped in to help them with highly secure and quick-to-deploy scalable bandwidth solutions. These provide stable, consistent and secure access to critical business applications to keep remote employees connected and productive.

  From Dynamic Employee Remote Access VPN to AT&T Wireless Broadband that you can scale, we have solutions to support your business as employees move away from the office.

- **Allow communication to continue**

  Being able to communicate and collaborate effectively with colleagues, teams, suppliers and customers in near real-time is the need of the hour for all businesses. We offer proven, stable and secure enterprise-grade communication tools so your people can collaborate virtually anywhere.

  Be it business messaging, mobility solutions, cloud-based unified communications services or contact center solutions, AT&T is at the forefront of helping the enterprise workforce shift from face-to-face communications to mobile and WiFi-based solutions.

- **Help protect and manage data**

  Our cybersecurity solutions can help you address new and heightened cyber risks and help protect your data. Our managed security services can help assess, protect and monitor your critical assets across the data center, cloud and remote endpoints.

  Our Managed Threat Detection and Response, Secure Email Gateway, and Business Recovery Services protect your business 24-7 by defending your organization against spam, malware, ransomware, phishing scams and other inbound threats, while keeping your data secure.

With an unmatched level of expertise and experience in handling and transporting critical customer data securely around the globe, AT&T is uniquely positioned to assist with your business continuity goals in these unprecedented times.

(The author is Managing Director and CEO, AT&T Global Network Services India)

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