MODERN PLATFORMS To Improve And Secure DIGITAL BUSINESSES

Security threats, data leakage risks, increasing workloads and many such challenges are evolving, demanding real-time actions from enterprises to prevent massive business losses in terms of money and customers

A strong digital presence is an unsaid compulsion for businesses to grow today. Be it banks, fintech companies, e-commerce or other service enterprises, a secure and effective online platform inevitably draws more customers. Security threats, data leakage risks, increasing workloads and many such challenges are evolving, demanding real-time actions from enterprises to prevent massive business losses in terms of money and customers.

How advanced technologies can improve digital businesses

Latest solutions powered by technologies like artificial intelligence (AI), blockchain, cloud and edge computation can be tailored as per individual business needs. For instance, customers are more inclined towards banks that provide end-to-end digital solutions, either Web- or mobile-based. To provide uncompromised security and swiftness with on-the-go platforms, banks and financial institutions need to look towards these modern technologies.

Faulty transactions is one of the biggest challenges banks face, which result in loss of customers. Subhasis Bandyopadhyay, general manager - BFSI, Mindtree, says, "The challenge comes from dependency on older static rules and legacy platforms. These need to be updated to AI-powered engines that have the ability for real-time analysis. Indian banks are yet to mature to understand how to reduce false alerts while detecting faults in real time."

e-Commerce platforms were the early adopters of AI-powered solutions, using these for better recommendations, virtual trial rooms, flexible search options and so on—improving overall customer experience. Now most enterprises can improve internal productivity and transparency towards customer communication with advanced communication platforms.

While improving customer experience and process efficiency, and increasing business productivity are the direct benefits of AI solutions, other crucial application areas of AI are cyber security and data privacy. Sourabh Issar, chief executive officer, CloudSek Information Security Pvt Ltd, says, "In India, while B2C channels (like credit and debit cards, Aadhaar cards, etc) get breached the most, the real money is lost to hackers through B2B medium.

"The hacker community is getting interested in the Indian financial sector because of the high amount of money being put into circulation by our country. Sensitive data like user account information of various websites, employee and agents data, and so on, are available for sale on the dark Web. This can have catastrophic consequences on professional as well as personal lives."

Technology as a solution

In response to these challenges, there are a number of solutions available in the market. Let us look into some of these.

Machine learning (ML)-powered platform for banks. In banks, finding the root cause of faulty transactions

often becomes cumbersome because of manual processes. Automating this can exponentially reduce the time and effort that is invested in root-cause analysis (RCA).

One such platform, delivered by Mindtree on an ML engine developed by TookiTaki, provides an automated alert management and reconciliation solution. The inbuilt smart reconciliation management system provides quick adjustment recommendations in case of errors and resolutions for exceptions with high accuracy. The smart alert system detects suspicious activities or bad transactions, and raises caution in real time. The system increases RCA efficiency up to 50 per cent and reduces false alerts by 40 per cent.

Pankaj Choudhary, vice president - BFSI, Mindtree, says, "The post-authorisation tool goes through the databases, and learns the patterns of transactions and types of alerts that occur. Optimal efficiency of the system increases with time as the platform binds itself more to the dataset and studies more patterns of transactions. Software as a service (SaaS) follows a monthly or yearly subscription model that can be availed over cloud or deployed on-premise."

As an example, Choudhary cites a mid-sized North American bank that gained 40 per cent higher business efficiency, while a large European bank was able to reduce 30 per cent operational cost on error control, damage control and RCA study using the platform.

Smart messaging platform for businesses. Businesses more familiarly use either Gmail or Outlook as their main emailing platform. The difficulty often faced by managers and team leaders is keeping track of email interactions, customising recipients, ensuring data privacy and having clear communication with clients.

New-age messaging clients solve these issues actively. For instance, IceWarp is an emailing platform that has a unique feature called TeamChat, in addition to the usual To, Cc and Bcc fields. Any message sent across TeamChat is represented in a group chat-like user interface.

The platform organises group emails along with documents and files being shared. More interestingly, any client who does not have access to the company network can be added to TeamChat through a guest session, where team members can directly share updates and files with the client. This kind of a solution boosts customer satisfaction through transparency and ease of access to vendors. Simultaneously, managers have clear visibility on their team's official communications, internally and with clients, increasing awareness of the data being shared in the process.

Adam Paclt, global chief executive officer, IceWarp Inc., shares a use case, "A construction company that creates channels to handle projects and invites clients to communicate directly with managers adopted IceWarp platform. Its clients were happy to be able to have documented conversations with the whole team while putting forward their requirements. Managers were able to deploy and troubleshoot queries swiftly.

"Companies who adopted TeamChat have decreased email traffic by 40 per cent and improved problem-solving speed by more than 30 per cent."

Digital risk management solution for enterprises. Data breach or a hacked network can potentially drive a company towards bankruptcy. The aim of the hacker community is to find vulnerabilities in enterprise networks and use those as entry points. While a fairly new concept in India, digital risk management solutions are becoming fairly important.

For instance, CloudSek provides such solutions, and is partnered with several banks and large IT enterprises in India. CloudSek platform can identify various potential network entry points of a company and point these out in real time, so that necessary precautions can be taken.

In addition, its AI-powered engine with big data capabilities can search thousands of sources in the surface Web and dark Web with 5000 keyword combinations in a matter of hours to detect any potentially leaked data across the Internet. The platform collects 10GB to 15GB raw incremental data each day—standard manual processes that would otherwise take weeks. Reports generated enable enterprises to take reformative actions.

This kind of a solution can be incredibly useful for large enterprises, financial organisations or high security networks, where a single data leak can be disastrous.

More solutions. There are numerous other solutions that provide great online business processes. For instance, Salesforce is a popular platform that delivers clear visibility of sales and marketing achievements along with the progress of a company.

Archer is another platform heavily used for secure online operations.

Indian banks have created a technical community called Bankchain, which is piloting blockchain-based solutions to improve the national banking infrastructure. ICICI Bank, Axis Bank, State Bank of India, Kotak Bank, Bank of Baroda and so on have joined the community. Member banks receive updated network infrastructure and upgraded tools for banking. Moreover, they are added to the currently under-test blockchain network to enable secure and error-free transactions.

Overall, Indian enterprises are on their toes to deliver secure, efficient and flawless online services to customers. Choudhary concludes, "If businesses do not keep their infrastructure up-to-date, it will create a lot of loopholes in their network, which can lead to massive business losses. This should become the focus area for enterprise auditors."

—Paromik Chakraborty, technical journalist, EFY

The Rise of Edge Analytics

In applications like driving or surveillance, where decisions need to be made in real time and on the spot, edge analytics scores over the cloud

Imagine a little girl holding a red balloon in a crowded park. She is with her mother and it is a beautiful spring afternoon. Her mother looks away momentarily, distracted by some noise and when she looks back, the child is gone. She desperately calls out her baby's name and bystanders join in the desperate search. They quickly report the missing child to the information desk in the park, where security officers view surveillance camera feeds—both closest to the location where the girl went missing and across the entire park's camera network, looking for a child holding a red balloon. And within seconds, officers locate the child who had wandered off.

Sounds like a sci-fi movie? Not at all! In fact, capabilities of artificial intelligence (AI) have progressed beyond what this simple example demonstrates. In China recently, a facial recognition surveillance camera network was able to apprehend a suspect from a crowd of 60,000 concert goers—possible today thanks to real-time edge analytics.

What is edge analytics

In a typical Internet of Things (IoT) system, every connected device, except for the cloud, is considered an edge device—cellphone, surveillance camera, connected automobile, Internet gateway, etc. Today, all data is digital and the number of connected devices is expected to grow to 27 billion in just three years. There has been an explosion of data generated, and the location at which data is stored and analysed has become critical to extract maximum value from it.

In the missing child scenario, surveillance video feeds from multiple cameras are sent to the cloud over 4G, analysed and then information is sent back to the authorities on the ground. Time to act is delayed and results can be tragic. Real-time analytical tools need to work with real-time data, and the best place to do that is where real-time data sits—on the edge.

Edge analytics is the lynchpin that drives real-time decision-making. It means increased intelligence on the devices at the edge. This translates to increased processing capabilities (compute) as well as higher storage on edge devices.

The ability to analyse and extract value from data in real time is a game changer for all industries. Edge analytics is being leveraged by all verticals, including smart cities, manufacturing, retail and healthcare.

Edge devices deliver timely, informed decisions

At a high level, there are three crucial functions that define an edge device—compute (processor), storage and communication. Depending on the application, there may be a need for faster processing, multi-core processors to save power, more sensors, contextual awareness and a huge storage capacity.

Till now, raw data content sat at the edge and metadata was sent to the cloud, but increasingly, context is complementing content. Both content and context drive informed real-time decisions. Raw content from the constant inflow of data from sensors must be turned readily into information or context.

Technologies like AI, machine learning (ML) and image recognition, when applied to edge devices, interact with real-time data to generate context. With context, we gain quick and actionable insights to immediate environmental stimuli. Access to this kind of information ultimately creates a more efficient and effective environment.

For instance, let us look at a home surveillance camera. Typically, when someone rings your door bell, you can determine whether it is someone you know—such as a relative or domestic help—before you open the door. By adding facial recognition software, the technology could verify whether the delivery truck driver who rang your doorbell is truly an employee of the company he claims to work for, just by tapping into an employee database. If the software could intimate you that the person is not who he claims to be, then this can serve as a timely warning that prevents you from opening the door.

Another application of edge analytics is in the automotive industry. With connected cars or fully autonomous vehicles, proximity sensors are critical to identify impending danger and play a key role in autonomous driving. These vehicles' proximity sensor data, however, may never be pushed to the cloud because these cannot afford time lag.

When a vehicle is too close to an object for comfort, analysis needs to be near-instantaneous, based on real-time data, in the car itself, to deliver a real-time response. On completing the journey however, proximity data may no longer be needed (since the environment might have changed). Thus, this kind of data could be flushed from memory, post occurrence, since it will no longer be of use.

To truly take advantage of actionable insights and real-time response on edge devices, both reliable, resilient storage and powerful analytical tools will need to reside at the edge. Here, timeliness is critical, as this actually converts content into context and passive decisions into informed ones.

Embedded solutions help capture, aggregate, transform and preserve data across IoT devices that range from smartphones, drones and surveillance cameras, to connected cars, appliances, personal devices, sensors and more. These devices reside at the edge where embedded solutions work behind the scenes in increasingly smaller, but simultaneously more powerful solutions. AI is hard at work at the edge, analysing and processing data to give real-time feedback.

What lies ahead

AI seems to be touching lives at every turn. Typically, you listen to radio traffic reports during your morning commute. You might hear about a car accident on the radio and take a different route. Today, AI-infused talking personal assistants on your smartphone can give you the best way home and even reroute you along the way.

Thanks to AI and other technologies, we know more about our surroundings than ever before. We are also starting to learn more about

what goes on inside the human body. There are new edge devices that go beyond tracking steps, heart rates and calories burned. These devices are enabled by AI to have ML capabilities. These can detect early signs of sickness or stress and suggest appropriate courses of action, such as giving instructions to take vitamins, get some sleep or go see a doctor! The so-called empathetic AI to help with depression is already in use, and will only be advanced to help us live a healthier and more fulfilling life.

Although we are seeing more AI-driven applications in our everyday life, AI is still in its infancy. We have only scratched the surface of what it can become. As we can see from a series of talks by Jason Silva, a technology enthusiast and self-proclaimed futurist, data is now alive. It is talking back to us. It is driving the IoT to ultimately become a world of intelligence, by leveraging the edge.

—Balaji Sivakumar, director - product marketing - India, Western Digital

How Rajasthan Improved e-Governance With Automated Kiosks

Without human intervention, errors and delays have reduced substantially. Self-service has improved citizen satisfaction, too

To ease the process of procuring government documents for citizens and improve governance, the state of Rajasthan has deployed automated self-help kiosks across rural areas of its 23 districts. Citizens can now self-acquire their official documents while avoiding long queues and time-taking processes at service offices. This has substantially improved citizen satisfaction and reduced erroneous operations.

Challenges being addressed

The department of IT in Rajasthan conceived the idea of deploying the kiosks for the citizens. The biggest challenge they faced in the way of e-governance was service delivery of documents like birth certificate, education certificate, caste certificate, Aadhaar card and PAN card. Until then, citizens had to visit service offices, called Atal Seva Kendra or e-Mitra Centres, multiple times to acquire these documents. This led to long queues, heavy delays and erroneous processes.

Sensitive data leakage and fraudulent transactions were also on the rise. All these culminated into dissatisfied citizen service and low-quality maintenance.

In addition, these processes drew a substantial amount of finances.

To address these challenges, the department collaborated with Lipi Data Systems Ltd to deploy self-service kiosks across 10,000 *gram panchayats* in Rajasthan. The kiosks, called e-Mitra Plus, were rolled out in a phased manner. The first phase started in October 2017, and launched 400 services across all the 10,000 kiosks in the rural areas of the state. The idea was to reduce the hassles that citizens faced while collecting documents, by making these available in close proximity.

e-Mitra Plus kiosk

The e-Mitra Plus setup

Each self-service kiosk consists of two screens. The one at the side is used for various kinds of communication like video-conferencing, live video broadcasts and advertisements. Ajay Jha, general manager - sales, Lipi Data Systems, says, "The screen is often used to broadcast public announcements or important service-related messages by the government. Customised ads can also be broadcast.

"The screen has a two-way communication facility, using which authorised administrators from different locations can log in to the system and communicate using the screen in case of an emergency." Integrated speakers and mics enable two-way communication.

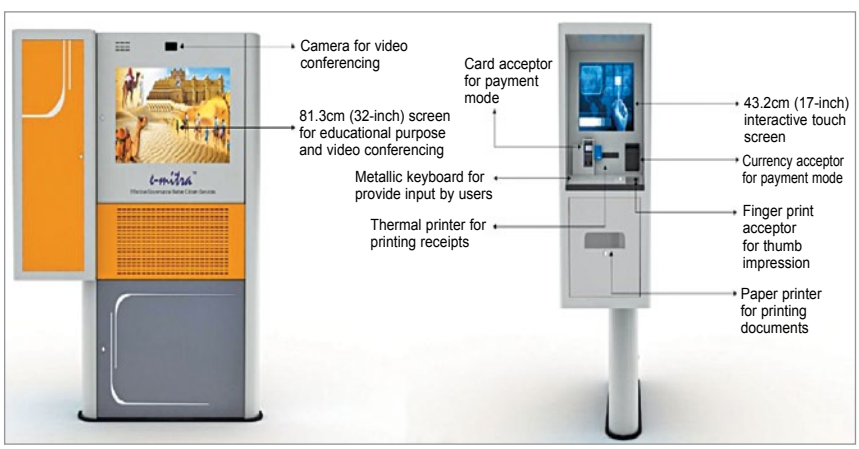
The other face to the front of the system is the main transaction unit. Here, selected official documents can be generated. Inputs are given through simple button presses or touchscreen control. An integrated printer prints the documents on the spot.

The applicant has to submit a request for documents at a nearby office. On verification, either an existing identification number (such as Aadhaar number, PAN, etc) or OTP is provided to the applicant. This is used as input for the kiosk to print the corresponding document. Charges may be associated with the service as set by the government. Payment can be done using the kiosk through different modes such as cash, debit card, credit card or any other method.

Kiosks installed in the first phase are capable of printing certificate documents only, like birth, land and education.

In the next phase, new kiosks will be installed that will come with card printing facility, too.

Four types of cards can be printed in a single kiosk, as per specified requirements (like Aadhaar card, PAN card, driving licence and so on). Moreover, the kiosks can also display transaction or application statuses. While Lipi Data Systems delivered the kiosks, network provider Rajnet set up the optical-fibre infrastructure for connectivity. Software service providers were involved in developing the backend operating platform.



Features of e-Mitra Plus kiosk

Benefits achieved

Without human intervention, errors and delays have reduced substantially. Jha adds, "This process helps avoid the various channels associated in manual procurement of documents. Applicants can avoid long queues and multiple visits to the offices. Conversely, service offices can work quickly with reduced work load. All this leads to improved citizen satisfaction and transparent e-governance."

The digital display helps create mass awareness starting from rural regions. Importance of documents, necessary procedures and regulations are made familiar to the masses. Announcement broadcasts are better perceived among the public. Instant video-conferencing feature enables quick communication across distributed teams.

Also, a lot of money is saved. Jha says, "Automated kiosks reduce the requirement of investing in additional manpower, separate counters and office setups just for handing documents."

Telecom providers like Jio, Airtel and Vodafone are also collaborating for this project. Kiosk-based bill payments are enabling all associated organisations to generate revenues as well.

Cost points

Jha mentions that price of each kiosk is about ₹ 200,000. Investments were required in areas like extensive software development, network setup and other infrastructural requirements. Logistics to remote areas and setup processes also came with challenges and financial requirements. The complete cost of the project at the state scale is over ₹ 3 billion.

Going forward

The next phase of kiosk installation will be visible within the next three months. Five thousand new kiosks will be installed throughout the state of Rajasthan, including major urban areas.

The feedback has been positive from citizens and government officers alike. Local language support and well-instructed screens enable easy usage for commoners. This kind of a solution can be a great example for the rest of India to ease the process of document procurement for Indians and give a big boost to Digital India initiative. EFY

—Paromik Chakraborty, technical journalist, EFY