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Editorial

We would like to wholeheartedly thank our honorable Chairman, Secretary, Executive Director and Principal for their continuous encouragement and constant support for bringing out the magazine. We profoundly thank our Head of the Department for encouraging and motivating us to lead the magazine a successful one right from the beginning. Ishare serves as a platform for updating and enhancing upcoming technologies in Information and Communication. We are grateful to all the contributors to this magazine so far. The magazine has been sent to almost 60 Institutions in and around Tamilnadu. So far we have received feedbacks and appreciations from various Institutions.

We would be very pleased to receive your feedbacks. Please send your feedbacks to ishare@ksrcas.edu

By,

Editorial Board

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Assistant Professor, Computer Science

Nehalem microarchitecture (1st generation)

"Bloomfield" (45 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Hyper-threading, Turbo Boost, Smart Cache.
- FSB has been replaced with QPI.
- Transistors: 731 million
- Die size: 263 mm^2
- Steppings: C0, D0

"Lynnfield" (45 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, Enhanced Intel SpeedStep Technology (EIST), Intel 64,

XD bit (an NX bit implementation), TXT, Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost, Smart Cache.

- Core i7-875K features an unlocked multiplier and does not support Intel TXT and Intel VT-d..[1]
- FSB has been replaced with DMI.
- Transistors: 774 million
- Die size: 296 mm²
- Stepping: B1

Westmere microarchitecture (1st generation)

"Gulftown" (32 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Hyper-threading, Turbo Boost, AES-NI, Smart Cache.
- Core i7-980X and 990X feature an unlocked multiplier.
- FSB has been replaced with QPI.
- Transistors: 1170 million
- Die size: 239 mm²
- Steppings: B1

Sandy Bridge microarchitecture (2nd generation)

"Sandy Bridge" (32 nm)

- Most models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), TXT, Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost, AES-NI, Smart Cache, Intel Insider, vPro
- Support for up to 4 DIMMS of DDR3-1333 memory.
- S processors feature lower-than-normal TDP (65 W on 4-core models).
- K processors have unlocked turbo multiplier but does not support Intel TXT, Intel VT-d [2] and vPro.[3][4]
- Non-K processors will have limited turbo overclocking.
- Transistors: 1.16 billion[5]
- Die size: 216 mm²

"Sandy Bridge-E" (32 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost, AES-NI, Smart Cache.

- Support for up to 8 DIMMS of DDR3-1600 memory.
- Transistors: 1.27 (M1 stepping) or 2.27 (C1, C2 steppings) billion
- Die size: 294 (M1 stepping) or 435 (C1, C2 steppings) mm²

Ivy Bridge microarchitecture (3rd generation)

"Ivy Bridge" (22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, F16C, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Hyper-threading, Turbo Boost 2.0, AES-NI, Smart Cache, Intel Insider,
- Support for up to 4 DIMMS of DDR3-1600 memory.
- All models except the K processors additionally support Intel TXT, Intel VT-d and vPro.
- S processors feature lower-than-normal TDP (65 W on 4-core models).
- T processors are performance optimized
- K processors have unlocked turbo multiplier but does not support Intel TXT, Intel VT-d and vPro.[Non-K processors will have limited turbo overclocking.
- Transistors: 1.4 billion
- Die size: 160 mm²

"Ivy Bridge-E" (22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, F16C, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost 2.0, AES-NI, Smart Cache.
- Support for up to 8 DIMMS of DDR3-1866 memory.
- Transistors: 1.86 billion
- Die size: 256.5 mm^2

Haswell microarchitecture (4th generation)

"Haswell-DT" (quad-core, 22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, AVX2, FMA3, F16C, (BMI1)(Bit Manipulation Instructions1)+BMI2, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Hyper-threading, Turbo Boost 2.0, AES-NI, Smart Cache, Intel Insider
- All models except the i7-4770K additionally support Intel TSX-NI and Intel VT-d

- All models except the i7-4770K and i7-4790K additionally support vPro and TXT
- Transistors: 1.4 billion
- Die size: 177 mm²

"Haswell-H" (MCP, quad-core, 22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, AVX2, FMA3, F16C, (BMI1)(Bit Manipulation Instructions1)+BMI2, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost 2.0, AES-NI, Smart Cache, Intel Insider.
- i7-4770R do not support TSX, TXT and Vpro.
- Core i7-4770R also contains "Crystalwell": 128 MiB eDRAM built at (22 nm) acting as L4 cache
- Transistors: 1.4 billion
- Die size: 264mm² + 84mm²

"Haswell-E" (22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, AVX2, FMA3, F16C, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation),

Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost 2.0, AES-NI, Smart Cache.

- Support for up to 8 DIMMS of DDR4-2133 memory.
- Transistors: 2.60 billion
- Die size: 356 mm²
- i7-5820K has 28 PCI Express Lanes; i7-5930K and i7-5960X have 40

Broadwell microarchitecture (5th generation)

"Broadwell-DT" (quad-core, 14 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, AVX2, FMA3, F16C, (BMI1)(Bit Manipulation Instructions1)+BMI2, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost 2.0, AES-NI, Smart Cache, Intel Insider.
- All models also contain "Crystal Well": 128 MiB eDRAM acting as L4 cache

2. LIST OF INTEL CORE I7 MICROPROCESSORS

MOBILE PROCESSORS

B.Sowmya, M.C.A., M.Phil.,

Assistant Professor, Computer Application

Nehalem microarchitecture (1st generation)

"Clarksfield" (45 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), TXT, Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost, Smart Cache.
- FSB has been replaced with DMI.
- Transistors: 774 million
- Die size: 296 mm^2
- Steppings: B1

Westmere microarchitecture (1st generation)

"Arrandale" (MCP, 32 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), TXT, Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost, AES-NI, Smart Cache.
- FSB has been replaced with DMI.
- Contains 45 nm "Ironlake" GPU.
- CPU Transistors: 382 million
- CPU die size: 81 mm^2
- Graphics and Integrated Memory Controller transistors: 177 million
- Graphics and Integrated Memory Controller die size: 114 mm^2
- Steppings: C2, K0
- Core i7-610E, i7-620UE, i7-620LE and i7-660UE have support for ECC memory and PCI express port bifurcation.

Sandy Bridge microarchitecture (2nd generation)

"Sandy Bridge (dual-core)" (32 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, Enhanced Intel SpeedStep Technology (EIST),

Intel 64, XD bit (an NX bit implementation), TXT, Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost, AES-NI, Smart Cache.

- Core i7-2620M, Core i7-2640M, Core i7-2637M, and Core i7-2677M support Intel Insider
- Core i7-2610UE, Core i7-2655LE does not support XD bit (Execute Disable Bit).[9]
- Core i7-2610UE, Core i7-2655LE has support for ECC memory
- Transistors: 624 million
- Die size: 149 mm²

"Sandy Bridge (quad-core)" (32 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), TXT, Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost, AES-NI, Smart Cache, Intel Insider.
- Core i7-2630QM, Core i7-2635QM, Core i7-2670QM, Core i7-2675QM do not support TXT and Intel VT-d.[10]
- Core i7-2715QE has support for ECC memory.
- Core i7-2710QE, Core i7-2715QE do not support Intel Insider and XD bit(Execute Disable Bit).[11]
- Transistors: 1.16 billion[5]
- Die size: 216 mm²

Ivy Bridge microarchitecture (3rd generation)

"Ivy Bridge (dual-core)" (22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, F16C, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), TXT, Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost2.0, AES-NI, Smart Cache, Intel Insider.
- Core i7-3517U, i7-3537U do not support Intel TXT.
- Core i7-3555LE and Core i7-3517UE do not support Intel Insider.

"Ivy Bridge (quad-core)" (22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, F16C, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), TXT, Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost, AES-NI, Smart Cache, Intel Insider.
- Core i7-3610QM, Core i7-3612QM and Core i7-3630QM (Socket G2) do not support Intel VT-d.[12]
- Core i7-3610QE, Core i7-3615QE and Core i7-3612QE do not support Intel Insider.
- Transistors: 1.4 billion
- Die size: 160 mm^2

Haswell microarchitecture (4th generation)

"Haswell-MB" (dual-core, 22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, AVX2, FMA3, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel TXT, Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost, AES-NI, Intel vPro, Intel TSX-NI, Smart Cache
- Transistors: 1.3 billion
- Die size: 181 mm²

"Haswell-ULT" (SiP, dual-core, 22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, AVX2, FMA3, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Hyper-threading, Turbo Boost, AES-NI, Smart Cache
- Core i7-4550U and higher also support Intel VT-d
- Core i7-4600U and i7-4650U also support Intel vPro and Intel TXT
- Transistors: 1.3 billion
- Die size: 181 mm²

"Haswell-ULX" (SiP, dual-core, 22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, AVX2, FMA3, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Hyper-threading, Turbo Boost, AES-NI, Smart Cache, Intel VT-d, Intel vPro, Intel TXT, and Intel TSX-NI
- Transistors: 1.3 billion
- Die size: 181 mm²

"Haswell-MB" (quad-core, 22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, F16C, AVX2, FMA3, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Hyper-threading, Turbo Boost, AES-NI, Smart Cache, Intel Insider
- Core i7-48xxMQ, i7-49xxMQ, and all MX models also support Intel TXT, Intel VT-d, and vPro.
- Transistors: 1.4 billion
- Die size: 177 mm²

"Haswell-H" (MCP, quad-core, 22 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, AVX2, FMA3, F16C, Enhanced Intel SpeedStep

Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Intel VT-d, Intel TXT, Hyper-threading, Turbo Boost, AES-NI, Smart Cache, Intel Insider.

- Core i7-48xxHQ, i7-49xxHQ, and all EQ models also support Intel vPro and Intel TSX-NI
- Models with Iris Pro Graphics 5200 also contain "Crystalwell": 128 MiB eDRAM built at (22 nm) acting as L4 cache
- EQ models support ECC memory
- Die size: 264mm² + 84mm²

Broadwell microarchitecture (5th generation)

"Broadwell-H" (MCP, quad-core, 14 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, AVX2, FMA3, F16C, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Intel VT-d, Intel TXT, Hyper-threading, Turbo Boost, AES-NI, Smart Cache, Intel Insider, and configurable TDP (cTDP) down (47W→37W).
- Models with Iris Pro Graphics 6200 also contain "Crystalwell": 128 MiB eDRAM acting as L4 cache
- EQ models also support Intel vPro, Intel TSX-NI, and ECC memory.

"Broadwell-U" (dual-core, 14 nm)

- All models support: MMX, SSE, SSE2, SSE3, SSSE3, SSE4.1, SSE4.2, AVX, AVX2, FMA3, Enhanced Intel SpeedStep Technology (EIST), Intel 64, XD bit (an NX bit implementation), Intel VT-x, Intel VT-d, Hyper-threading, Turbo Boost, AES-NI, Smart Cache, configurable TDP (cTDP) down
- Core i7-5600U and higher also support Intel vPro, Intel TXT, and Intel TSX-NI
- Transistors: 1.3-1.9 billion
- Die size: 82-133 mm^2

3. THE 2015 CYBER SECURITY ROADMAP

R. Nirmala, M.Sc., M.Phil., M.C.A.,

Assistant Professor, Computer Science

As we cross the threshold of another year in enterprise IT, Information Age calls on the expertise of the security industry for their forecast of the priorities and challenges ahead.

2015 will see a broadening attack surface, but many new options for security intelligence, detection and monitoring, and sophisticated authentication.

As part of our look ahead at 2015, we asked industry experts what the major themes will be for cyber security. Though threats are likely to continue to evolve in sophistication, so will enterprise security strategy, as the technologies available to us mature?

The broadening attack surface

Many experts think that the attack vectors available to hackers will continue to grow this year as the Internet of Things takes root and technologies like contactless payments and mobile payment become more commonplace. Though the Internet of Things (IoT) is unlikely to see a rapid explosion in 2015, valuable data will gradually but surely become accessible through an ever-widening selection of entry points, warns Paul Nguyen, president of network security automation firm CSG Invotas.

'We’re already seeing an increase in major attacks associated with the IoT,'. 'Botnets created on connected devices (even appliances like refrigerators) can, for example, start a spam e-mail attack. TVs with built-in cameras and microphones pose another attractive target, as do other previously innocuous household devices. The possibilities for IoT attacks are truly endless, but ultimately such attacks are likely to be about money/profit.'

Organisations will have to improve their ability to detect and correlate attack activity to respond to the increasingly sophisticated threats that accompany these high- growth technologies. But as Nguyen advises, no single product or vendor can cover every possible threat angle.

'Organisations will need to find ways to feed all relevant data into a single big-data repository to accurately mine and filter the attack information.'

The traditional approach of securing the perimeter will no longer be enough, thinks Cisco's UK director of cyber security Terry Greer-King, when the perimeter is with thousands of sensors deployed remotely.

'What is required is a stringent, structured process and methodology to secure IoT, support analytics and enable the detection of anomalous behaviour,' he says. 'But at the core of the current problem is

the proliferation of cloud, especially given the ease at which mobile devices in the workplace can connect with third-party cloud services.'

With Cisco predicting that cloud network traffic will grow more than threefold by 2017, organisations must be able to trust the information they consume as well as the systems delivering it - only then will IoT truly thrive and business adoptions of services soar.

Cloud-enhanced security

However, in many ways traditional cyber security will become more of a secure utility as cloud and virtualization adoption increases. Such trends will have a certain amount of security built-in by leveraging cloud or virtualization technology, although he amount and type of security that will be included will be minimal and likely to operate in the background.

'But the most interesting opportunity that cloud presents for security is sharing threat data,' says Nguyen. 'Threat awareness and detection is improved with the more data organisations have access to. The cloud is the perfect place to share the massive collaboration of security Intelligence that could make a significant dent in the global cyber attack capabilities.'

Some such as Fraser Kyne from endpoint security firm Bromium say virtualization can play a major role in enabling the cloud securely, by providing the architectural foundations on which to build the next generation of secure platforms.

The granular control of mobile endpoints

Cloud has the capacity to revolutionize business if you can control the ‘cloud in your pocket’ - the connecting devices. Roy Tobin, threat researcher for endpoint protection firm Webroot thinks avoiding the loss of sensitive data which has been downloaded onto mobile devices will be the biggest security challenge to come.

'Gone are the days where employees had one computer, used one collaboration program and rarely visited websites'. 'Now, IT departments are tasked with protecting a wide range of devices, many of which operate outside of the company firewall.'

The solution is Data Loss Prevention (DLP), which enables companies to maintain a network-wide inventory of data and have visibility of data movement both over the network and on mobile devices and removable media.

'However, simply adding DLP tools to a network is not enough. Organizations need to develop a DLP strategy before they start thinking about technology solutions.'

With a number of different operating systems and a multitude of different devices available to people today, businesses’ approach of managing physical devices is becoming complex and expensive, forcing companies to commit time and resources to managing personal applications on employee’s devices that have nothing to do with their work.

'A less costly and more effective approach is to manage what people actually do on their devices, which is to say the business applications they use,' says Greer-King. 'Containerization is increasingly common and allows businesses to separate work-related applications from personal files and applications, meaning that only business-relevant applications are monitored and secured.'

The advancement of detection and monitoring

Time is becoming ever more critical in the discovery of security compromises. The longer a threat goes without being detected, the more opportunity there is for the attacker to cause damage and the worse it will be for an organization's reputation, record of compliance and ultimately its bottom line as customers loses confidence.

'In attempting to detect more known and unknown threats, and to predict future risks, many organizations have begun to use more advance analytic solutions and big data techniques,' says Piers Wilson, head of product management at enterprise security specialist Tier-3 Huntsman. 'However, most big data solutions identify historic and potential threats by analyzing large stores of data, which is a significant weakness. Using big data to detect an unknown threat will only work with historical data; meaning that any threat that is present will still have time on the system to cause damage. Instead, organizations need to be sure that they can detect threats as soon as they appear. This will be a major challenge that businesses will be looking to overcome in 2015.'

But 2015 will never be about detection and remediation alone, adds Mike Langley, regional VP for Western Europe and South Africa at Palo Alto Networks.

'If you're only detecting, you're already on the back foot, and companies that come in and charge thousands a day over the course of a month to remediate your systems might tell you what happened, but they can't do anything to get back what was stolen,' he says.

As the enterprise market sees the benefits of a true platform-based approach to security, Langley believes we'll see more vendors phasing out standalone unified threat management (UTM) security solutions.

'As a result, intrusion prevention system (IPS) functionality and firewall functionality will meld more than it already has.'

Bring Your Own Identity

'The biggest security mistake companies are making is that they are continuing to rely on outdated password-based authentication systems to protect sensitive data and cyber assets,' warns Christian Campagnuolo, senior VP of product market, identity, at business intelligence firm MicroStrategy.

'Passwords are by far the weakest link in cyber protection, as they can be stolen, lost or guessed. Furthermore companies are mistaken if they believe asking staff to make their passwords longer and more complicated will solve this issue.'

The rise of the cybercrime and an increase in APT activity has escalated the need for advanced authentication. However, the majority of solutions currently available on the market require a trade-off between ease of use, cost to break and cost to own. Successful systems will be simple to use and give a seamless experience where users do not need to memorize complex passwords.

'With regards to biometric authentication, we expect, as it improves and new modalities become available that they will all become potential candidates to integrate with identity platforms such as Usher, which at the moment uses fingerprints (in addition to traditional authentication) and can step up to face and voice recognition,' says Campagnuolo. 'As companies come to the realisation that what they have now is not secure and is making life difficult, they will adopt biometric authentication, as one factor in a multifactor authentication system. This will change the way they identify people, access applications and entry ways, and authorize transactions through a single authentication system.'

For some security professionals the idea of one device being responsible for every aspect of your employee’s security credentials and identity could set alarm bells ringing. However, the world is becoming a cyber-mobile dominated world where more services and more money are being conveyed to people through cyber space, and all of it depends on proof of identity.

Paul Ferron, director of digital identity strategy at CA Technologies thinks 2015 will see a growing interest in Bring Your Own Identity (BYOID) as an alternative method of authentication.

'Already a growing number of sites are allowing visitors to login using a social or digital identity from a trusted third party, such as PayPal or Face book,' he explains.

According to research conducted by CA Technologies and the Ponemon Institute, while less than 20% of organisations have currently deployed BYOID, Ferron thinks the next 24 months will see a rapid adoption of this method.

One of the key challenges that will need to be addressed before BYOID can become mainstream will be that of ownership – 'businesses lines will need to negotiate with IT departments over the ownership issues, which will require a careful balance between security versus customer convenience and marketing insights and establishing a single, accountable point of control,' says Ferron. 'Organizations that get the balancing act right; will make significant progress in creating stronger identity credentials for their customers in the coming years.'

Organizations will also strive for zero-touch authentication to deliver a password-free experience for their customers and employees, through the use of analytics and the ubiquity of mobile.

'When the analytics check out – confirm a device, user behavior and location, or other attributes – a transaction can go forward without

disturbing the user for additional information, achieving zero-touch authentication,' says Ferron.

The analytics can bring in more data through models that learn additional user behaviors and attributes that help increase the level of certainty a user is who he claims to be.'

'When the analytics uncover a questionable situation, such as logging in from another continent or from a different device, this would require a step-up authentication, such as a one-time password, delivered via mobile – not zero-touch, but as frictionless as possible when there are indicators of fraud.'

4. 2015 TECHNOLOGY TRENDS – WHAT ARE THE SECURITY IMPLICATIONS?

R. Sudha, M.C.A., M.Phil.,

Assistant Professor, Computer Applications

The EU Data Protection Regulation which should come into force in 2017, will ramp up businesses' responsibility for data security.

With the New Year fast approaching, all businesses are looking ahead to their priorities for 2015, and if this past year has taught IT departments anything, it’s that data security needs to be high up on the agenda. We’ve seen business such as eBay and Adobe, and even

celebrities like Jennifer Lawrence, learns the hard way the harm a data breach can cause.

For businesses looking ahead to 2015, a security mishap, or even a potential data breach, can derail even the most important of projects. So what has 2015 got in store that could impact business data security?

EU general data protection regulation

Businesses may think they have a future proof IT strategy in place, but substantial regulation changes on the horizon will force a considerable rethink. The EU Data Protection Regulation which should come into force in 2017, will ramp up businesses' responsibility for data security, increasing sanctions for mishandling it. In short, this means fines of up to two per cent of a business's annual global turnover and possibly a requirement to report a breach within 24 hours.

This has ramifications for any strategy that is based around data - like BYOD, storage, internet of things and cloud. Because the changes in law are radical, organizations will have to work hard in 2015 to have a chance of complying and avoiding substantial fines when the new laws come in.

Big data innovation

2015 will see even more businesses take advantage of the power of the data they hold. From using analytics to gain greater business insight, to schemes such as the NHS' care.data initiative, organizations are doing more with their 'big data'. However, due to the numerous data breach stories in the press, many organisations are unwilling to engage in innovative data schemes for fear of it increasing the chances of a data leak, as demonstrated by the difficulties care.data has run into. For many, there's a lot at stake if this goes wrong: reputation, the risk of heavy fines from the ICO, and public outcry that could put a halt on any progress already made.

What we could see in 2015 is innovation being stifled by data leak worries, and to avoid these organisations should think about data security at the start of the project, and ensure it is incorporated throughout its life cycle. This needs to take into account every aspect of the project, from the devices being used to the platform that is accessing this data.

(Even) more mobile

While this has been a trend for the last couple of years, the increased use of mobile devices by employees is not slowing down. Whether an employee-owned (BYOD) or corporately owned and personally enabled (COPE) device, the growth in devices means a

corresponding increase in endpoints, all of which are potential security vulnerabilities.

With the proliferation in device types, form factors and operating systems, it's even more important that whatever security solution is in place is device agnostic, and able to cope with any type of new technology. That way firms are able to take an employee rather than device centric approach to data security and device management.

Changing devices

In 2014 we saw mobile devices starting to do more, with the contactless payment and fingerprint recognition technology in Apple's latest devices an example of this. What we're going to see in 2015 is an increase in what mobile devices are capable of doing. For example, Apple's Touch ID fingerprint scanner has so far been used to unlock the handset itself and as a verification tool when making purchases through Apple's App store. However, now that iOS8 has made this functionality available to third party developers, users will soon have the ability to unlock a greater range of apps via their fingerprints.

While this example could have additional security benefits, it's an example of device features rapidly expanding beyond what IT departments are comfortable with. In the wider business environment, firms need to be on their guard, and consider exactly what impact these new features will have on the way corporate data is stored and accessed. Contactless payment, face scanning and interaction with wearable

devices are all features we'll be seeing in 2015, but could be easily circumvented by hackers, or leave data open to leaks if they're not made part of the wider device security strategy.

Generation Z

The recent iCloud hack and subsequent leak of intimate photos of Hollywood celebrities has made it clear that even the young, rich and famous aren't immune to data loss. The fatal mistake these stars made was to forget that data, be it an email or photo, isn't static. More often than not it goes straight to the cloud, where in theory it can be accessed from anywhere.

The next few years will reveal the impact of these digital natives on sensitive corporate data. If they take a laissez-faire attitude to corporate data and don't consider what might happen to it when it is in the cloud, firms will end up facing serious data breaches. When businesses start realizing this, we'll see them taking a more serious approach to training their younger staff about data security so that it keeps up with their wider digital skills.

The corporate IT environment is changing faster than ever, fuelled by wider changes in consumer IT. Businesses clearly want to take advantage of the benefits that they can offer, but now more than ever data security needs to remain at the heart of these initiatives.

5. WINDOWS 10

G.R. Srinithi

II B.Sc (CS) "A"

Microsoft reveals windows 10 features that will be deleted in windows 10 installing process.

Enterprise users can manage company-wide rollouts for windows 10 updates. New windows browser 10 finally gets a proper name"MICROSOFT EDGE". The operating system will be a free upgrade for windows 7 and windows 8/8.1 users. During the first year, you will be charged. There has been some confusion around pricing, but Microsoft is expected to charge a one-off license fee and not move to a subscription model.

It allows users to create 3D models via a custom-built HoloLens .Android and IOS apps will run on the new OS.

Windows 10 Latest News

Windows 10 will launch globally in 190 countries this summer, and details about what to expect from the next-gen OS are slowly being

revealed-officially and via leaks. Here's our roundup of the latest windows 10 news.

Microsoft has revealed the windows 7 features that will not be making it into windows 10, as well as certain additional software user will need to download in order to get certain hardware working.

According to the windows 10 specifications page, Windows media center will be removed when windows 10 is installed on computer currently running windows 7 or 8.1. Windows 7 desktop gadgets will also be removed, as will the versions of solitaire, minesweeper and hearts that came pre-installed with the OS, although versions of solitaire and minesweeper will be available to download separately from the windows store. One drive will also be removed from windows live essentials if the user has it on their system, but will be replaced with the inbox version of the cloud storage service.

Additionally, if a user has a USB floppy drive they will need to download the latest driver from the manufacturer's website or from windows update. DVD's will also require separate playback software although Microsoft has not specified what it is or where to get it from.

Microsoft has announced a new windows 10 app that it claims will bring a more seamless windows 10 mobile experience to IOS and Android mobile devices, as well as windows smartphones.

Management console for windows apps and services such as OneDrive ,Office, Xbox Music or Skype, giving users to get the same continuous Windows10 experience on all mobile devices, not just Windows phone, Microsoft claimed.

New features of the build, code named 10122, include improvements or start and continuum, Microsoft Edge, default apps, and the Insider Hub.

For, now it is only available to participants in the "fast ring" of Microsoft's preview.

The new build solves various issues with earlier Windows 10 releases, including a visual glitch with Live Tiles, reports of crashing with Microsoft Edge and the Settings app, as well as some other minor problems.

Windows 10 specs/features

Microsoft is doing everything it can to ensure that windows 10 retains its core market of enterprise users.

As part of this, the company announced Microsoft update for Business at its Ignite conference in early May. One of the major shake-ups that windows 10 is introducing to the standard windows formula is the system of gradual, incremental updates brought on by the shift to platform-as-a-Service.

Microsoft has addressed potential compatibility queries, stating that the new tools will fully integrate with existing management software like System Center and Enterprise Mobility Suite.

Microsoft's forthcoming OS will let users apply software updates and app downloads by utilizing a network of other Windows 10 users, essentially peer-to-peer updates.

Local networks of PCs or a mix of local machines and internet-accessed PCs will be able to supply users with updates to Windows 10, reports the Verge.

Multitasking is a big feature of windows 10 that Microsoft has been keen to push, with a quadrant layout that allows users it snap up to four apps together and a smart suggestions feature for any dead screen space.

According to WinBeta, third-party developers will be able to create unique lock screens with windows 10, and apps such as data Sense and Battery Saver will come over from windows phone.

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COMPUTER JARGON

Find and circle all of the computer words that are hidden in the grid.

The remaining letters spell an additional word.

T P I R C S A V A J L E X I P I G E
L I A M E M O R Y M M O U S E N I L
C R A B K S A T X I N U Y H S T F G
D N D I R E C T O R Y E T A O E O O
P O W E R S U P P L Y N I R F R L O
U C O A S A E V A S S C R E T N D G
K I R O P K T Y P S H R U W W E E L
C D D E C P R E E A H Y C A A T R M
A N R I M A L L T D R P E R R E A T
B O L E N M E I E K E T S E E P H H
R C K I P R A F C V R I I R S U L M
E E B E I A R R I A B O O T M B O R
N S T W R A P R G R T N W B I N G O
N O O S G N D L O O D I N T I O I S
A N G M A K A U L A R A O T E A N R
C A E A S P T L T A I P O N R N D U
S N F I R E W A L L W R E I K O O C
T F D P R D H T O O T E U L B Y T E

Answer in next issue

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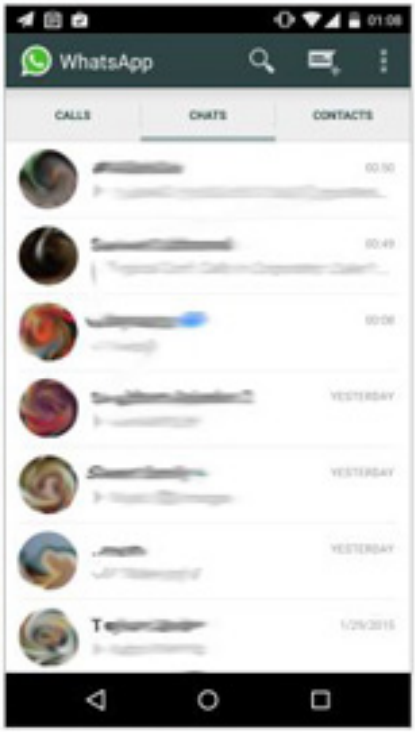

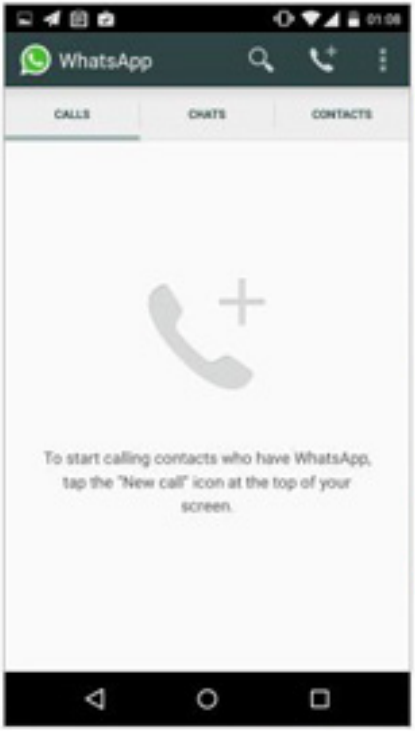

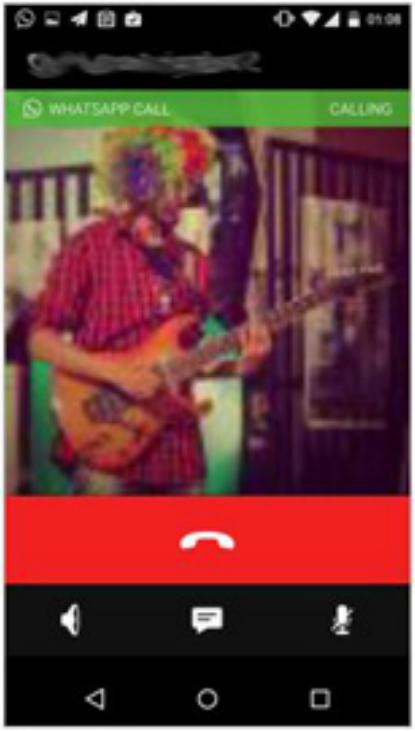

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