Smart Enterprise Trends 2015

10 Strategic Drivers that will Empower the Smart Enterprise

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Each year, Smart Enterprises leverage the best and latest technologies to optimize business practices, drive workforce engagement and create a competitive edge.

As an Information and Communications Technology (ICT) leader with more than 115 years of excellence, NEC is sharing its views on trends and technologies that are unfurling in order to help your Smart Enterprise provide superior customer services in a more flexible and secure work environment.

Ensuring business continuity is one of the most essential facets of the Smart and Secure Enterprise. Hybrid Cloud Services, Real-time Collaboration and Smart, Available Devices are all a part of a rapidly evolving technology foundation by means of which NEC is enabling new approaches to how Communications and IT services are delivered and managed, providing new ways for businesses to grow.

NEC has identified the following Top 10 Smart Enterprise Trends for 2015 which will be strategic for organizations and impact their operations in the coming years.
The number of mobile workers continues to grow each day. In today’s ‘flat’ organizations where access to specific expertise is critical, mobile connectedness is key for smart enterprises who want to operate efficiently and effectively in fast-paced business environments.

Today’s employees work from just about any place at any given time: their office, home, between appointments or while traveling. While geographic boundaries blur, technology is advancing to ensure workers remain fully integrated with their organization and customers – irrespective of where they are. Location becomes unimportant, while presence and availability become all the more crucial, making staff omnipresent.

**Smartly Available – Always, Everywhere**

Smartphones and tablets will continue overtaking PCs as the most consistently used business tools. Communications, data, and business applications will need to seamlessly extend to these mobile devices and include functions such as single number reachability, presence and easy routing through the company network.

“**The number of mobile devices exceeds the number of people on earth**”

The blending of business and private connectedness urges businesses to address issues about security credentials and requires renewed support of ‘Bring Your Own Device’ (BYOD) policies. Mobile technologies will continue driving technical innovation and new services to smartphones, as bandwidth, coverage, quality and efficiency in mobile networks improve.

**The Network is the Organization**

Increasingly, a company’s coherency will be determined by the intelligence of its network. The network becomes the organization, with wireless tentacles spreading from it to embrace location-aware services – not just for the benefit of tracking, tracing, safety and security, but also as a means to promote the organization itself through marketing and sales initiatives (via tools like Near Field Communications and mobile payment applications).
Saving money is important to any organization. Virtualized infrastructures improve business continuity and protect mission critical applications through system-level fault tolerance. Consolidating multiple physical servers on a single host and running Virtual Machines minimizes both capital expenditure and operating cost allowing organizations to better align infrastructure capabilities with business requirements.

Cloud Computing is Changing the Enterprise’s Approach to ICT
As the approaches to virtualization of computers, networks, and storage devices continue to mature, infrastructures will become software-driven, and IT management more efficient. This efficiency will enable services to be provided dynamically according to individual load and function requirements. Applications and cloud computing will reduce the need to build proprietary systems and free companies from legacy issues.

From Device-centric to Service-centric
The Smart Virtual Workspace provides end-to-end desktop virtualization, allowing employees to access files, applications, and data safely over any network, from the device of their choice. Desktop virtualization eliminates the need for local data storage, minimizes the risk of data loss or information leaks, and enables centralized management of multiple terminals thus reducing operational costs.

Cloud solutions, such as Virtual PBXs, provide all communications features typically found in a legacy hardware-based business environment. WebRTC (Web Real-Time Communication) embeds real-time voice calling, video chat, and point to point file sharing within business and through browser-to-browser applications. With WebRTC, the browser will become the new hub for content that is always at hand, irrespective of device.

Hybrid Cloud Provides Flexibility and Scalability
Businesses will increasingly turn to hybrid cloud solutions to enable scalable business processes. While many business owners will embrace the use of public clouds for less sensitive applications, they prefer private clouds for their vital processing tasks with allocation of these tasks as well as data storage for each application being controlled by cloud and edge terminals.

Hybrid clouds can quickly scale to a company’s needs and services can be paid for as needed. Hybrid clouds combine the best of two worlds, offering true benefits to smart enterprises aiming to stay ahead in their markets.

Smart Virtual Workspace
The Bright Future of Hybrid Cloud
Collaborative Communities

Gain an Edge over Rivals

Present markets demand swift responses to events and queries, requiring interaction between employees wherever they may be. Smart enterprises will continue to use the ‘always-on’ nature of modern life to gain an edge over their rivals.

Unified Communications and Collaboration tools such as video conferencing, shared workspaces and rich presence, allow disparate teams to work together in real-time, enabling multiple individuals to interact as efficiently and effectively with co-workers, clients, and suppliers as if everyone were together. Integration of rich Audio, Video and Web conferencing features means these tools become available on demand – continuing the creation of an informed and connected workspace that drives productivity and reduces latencies, from product development to customer care.

Reinventing Engagement Models

As the latest applications make the set-up and use of conferencing and file sharing easy, collaboration sessions become the de facto standard for office communications, nearly eliminating the need for business travel to meet in person. While knowledge sharing increases, formal and informal groups will become collaborative communities that provide coaching and create harmony to reach personal, group, and organizational goals.

Finally, as social communications provide integrated voice, data and video across social networks, smart enterprises will continue to integrate these into their business processes and reinvent their customer engagement models.
The smart enterprise must deal with both the complexity of globalization and daily competitive demands. As such, IT and support systems must now be highly flexible and resilient in order to seamlessly communicate and interoperate with other disparate technologies and systems. It is the enablement of this flexibility and resilience that defines ‘Openness,’ which is the simplest and most cost-effective approach to building flexible business architectures.

**Integrating Open Architectures and Standards into your Business**

Unified Communications and Collaboration (UC&C) solutions built on open architectures will help organizations leverage technologies they already have while enabling them to add ‘best of breed’ and ‘best in speed’ elements – irrespective of vendor or geography.

On the IT side, Open Stack software for cloud infrastructures will enable flexible deployment of Infrastructure-as-a-Service (IaaS) solutions. One of the main benefits of open standards is flexibility in internetworking and in deploying industry-standard servers and endpoints from multiple sources.

Open SIP will become the foundation for integration of media modes, network devices, and applications across a common infrastructure. SIP enables virtual applications to be delivered from the cloud to support conferencing, messaging, voice, and collaboration.

**Open Source on the Way to On-Demand Computing**

Open source programming languages, databases, middleware engines and other tools will continue to fuel mobile development and the growth of a mobile open source ecosystem. Open computing platforms – hardware and software – are essential for the journey towards on-demand computing. The role that open standards play will continue to be central to the evolution towards more responsive, focused and resilient on demand capabilities.
Smart Enterprises align their IT infrastructure capabilities with expanding business requirements. Modularity of systems, applications and implementations will allow businesses to invest in only what is needed at present, trimming up-front costs and leaving open the possibility of expanding or incorporating new technologies in the future.

**Invest for Today, Prepare for Tomorrow**

Many organizations are rapidly approaching a critical decision point: they need to maintain the ability to deploy applications across the full range of today’s alternatives (physical, virtual, private cloud, public cloud) and manage OPEX to ensure that they are cost-competitive in their markets. This need to remain cost-competitive will urge executives to make clear decisions – to replace, revitalize, and/or outsource some or all of their IT equipment.

“Easy to purchase, easy to deploy, simple to manage”

As cloud computing continues to shape the market for IT infrastructure, data center customers will increasingly require simplicity, flexibility, and high levels of scalability in their on-premises hardware ecosystems.

**Building Hyperscale Computing Systems**

With the increase in consolidation, intensive virtualization, and outsourcing, the traditional data center environment with common brand-name equipment and conventional architectures will continue to shift to the ‘hyperscale’ data center of tomorrow.

Building hyperscale architectures requires a fundamentally different approach than that taken with typical enterprise IT systems. Rather than building ‘monolithic’ platforms, distributed architecture design is implemented around distributed processing frameworks (such as Hadoop). Bringing it all together requires software and tools that automate node deployment, recover from failure (rerouting of workloads), and other management and monitoring tools.
‘Software Defined’ relates to systems where the control plane is abstracted from the underlying hardware and is then applied as software to manage/program most of the equipment in the data center. Software Defined servers are a well-established component of today’s IT department, and Software Defined Networking is also rapidly maturing. Software Defined Anything (SDx) will provide improved standards for infrastructure programmability and data center interoperability, allowing businesses and their customers to benefit from the resulting simplicity, cost reduction, and consolidation opportunities.

**SDN Enables Swifter Development of Network Solutions**

Leading the ‘Software Defined’ charge is Software Defined Networking (SDN), the technology which makes network devices programmable and dynamic, allowing network engineers to respond more quickly to changing business requirements.

In an SDN, a network administrator can shape traffic from a centralized control console without having to touch individual switches. This is especially helpful in a cloud computing multi-tenant architecture, as it allows managing traffic loads in a flexible and more efficient manner. SDN will soon extend to all aspects of the infrastructure. Currently, the most popular specification for creating an SDN is OpenFlow, the open standard which lets network administrators control routing tables remotely.

**Moving to a Software Defined Platform for User-Centric Services**

The ultimate goal of SDx is a more service-focused infrastructure that increases efficiencies and enhances IT service delivery. Along with the software that runs on these systems, standardization of underlying hardware platforms will enable IT departments to become more agile and efficient, delivering the best possible service to users and customers. Moving towards a Software Defined data center will help organizations who want to deliver Infrastructure-as-a-Service.

**Software Defined Anything**

Dealing Effectively with Business Dynamics
Business Continuity

Services Assurance in our Digitalized Now

It has become a matter of course for services to be offered 24 hours a day, 365 days a year and across countries. As a result, IT systems need to be extremely reliable and their High Availability is an important challenge.

Another challenge is the rapid growth of quantification and digitalization of data. While this can lead to more accurate, reliable and repeatable decision making, sophisticated digital assistance is required to convert all this data into intelligence for better business outcomes. With privacy protection being key in managing data and ensuring anonymity, the importance of security management of social infrastructures will grow.

IT managers need to protect data and applications from hardware, OS and application failures to sudden natural disasters. For a high level of operational uptime, infrastructure components must be fault tolerant with the ability to recover from complex failures and data storage must be secure. This is all the more important in mission-critical environments, such as healthcare, banking, insurances, e-commerce or web services.

**Services Assurance drives most Virtualization Projects**

Business continuity and disaster recovery (DR) now tops the list of customers’ virtualization adoption motivations, while there already is a healthy and vibrant market for backup, recovery, snapshot, replication and archive technologies designed for VM files and data. Smart enterprises will take advantage of data protection and DR tools designed for virtualization management, and virtualization ROI will increasingly be driven by improvements in infrastructure resiliency.

**Towards Maximum Protection**

Clustering provides the best solution when insuring uninterrupted workflow on standby systems when failure strikes. This clustering can take the form of software or fault tolerant server solutions which deliver exceptional uptime through dual modular hardware redundancy. These servers will provide continuous availability for all components resulting in optimal data integrity.
Contextual data spans the last mile of personal and business productivity. It provides new insights to guide public, private and business decisions. Advanced ICT enables trends to be extracted from huge amounts of data collected from the real world and/or cyberspace. This Big Data will continue to create new value for society by facilitating more accurate projections, more efficient control of resources, and smarter solutions to social issues.

Technologies like Artificial Intelligence and Machine Learning will further progress by utilizing these huge amounts of data to save lives (e.g. forecasting weather and predicting disasters). Enterprises will continue to deploy Big Data projects to drive better business intelligence, product development, and customer service. These projects will also include unstructured data captured from mobile devices, social media, log files, emails, images and video, which are then used to perform real-time analytics.

Social media will continue enabling marketing and sales to be more targeted, and businesses will start integrating marketing data from multiple sources across multiple activities.

**Data Storage Solutions Drive Interaction, Manageability, and UC&C**

The surge in data requires storage solutions to become more flexible and scalable as organizations find it increasingly complex to store, protect, and manage all of their information. Storage solutions will deliver continued focus on simple manageability while providing excellent reliability.

‘Meta-information’ will accompany voice, video, chat and text communications to provide a fuller context for interactions. Contextually aware presence will allow employees to receive information on content, tools, and services based on contextual information such as the geographical location, personal preferences, and current activities of group members. Integration with UC&C software will help workers use their mobile devices for contextual collaboration, while giving them access to features that indicate each co-worker’s availability and location.

**Contextual Analysis**

Converting Data into Business Intelligence
Cost reduction of sensors and performance improvement of processing technologies will spur data collection and information extraction across many sectors in 2015 – industry, energy, transport, retail, defense, and healthcare.

Sensing, location detection, pattern recognition, and data matching will all aim to empower accurate and swift decision making at the time and place of action. Ultra-compact and intelligent sensors will be installed in any place, and wide-range sensors mounted on satellites and drones will enable remote sensing in any environment.

Precision farming already uses environmental sensors to maximize yields at reduced cost. Remote sensing will continue to help farmers maximize crop yields by responding to varying growth conditions, helping minimize fertilizer, pesticide, and water waste.

Standing out from the Crowd
Fingerprints, facial definitions, body contours, retinal scans, and voice files will start to be composited through software to recognize and identify individuals in crowds at airports, border crossings or football stadiums. Effective biometrics will continue to be the fastest, most efficient way of identifying people. Data collection will go hand-in-hand with data analysis to recognize useful Geo-specific information, like personal preferences, environmental characteristics, and social information.

Human Understanding and Augmentation
Robotics and wearable technologies will expand individuals’ intellectual abilities and enhance memory and judgment. Computing abilities will expand to understand human thought, emotion, and intention, providing natural guidance of user behavior. Smart watches, cyber glasses, chips in running shoes, and health kits will capture what the user sees, hears, feels and is aware or unaware of – aiming to provide the ‘Quantified Self’ with richer experience and insights, and safer and healthier living.
Societies everywhere continue to be faced with formidable challenges, such as safeguarding sustainable energy supplies, providing clean water, improving emergency response, and dealing with demographic changes. Cities will grow larger and more complex, requiring authorities to look for solutions that improve the quality of life.

Important steps are being made towards building smarter societies – where Information and Communications Technologies play a vital role in ensuring energy efficiency, sustainable economic development, enhanced safety and security, along with wise management of natural resources.

Minimizing Waste, Maximizing the Quality of Life
Smarter storage and use/control of energy in buildings, by vehicles, and across networks, will achieve enhanced environmental and economic performance. Building automation systems that perform integrated surveillance, security, and energy usage monitoring will minimize energy waste through geolocating-automatically-controlled air conditioning and lighting systems.

These systems will also enhance security by providing specific data on the numbers of and placement of individuals within the building being scanned.

Within enterprises, solutions such as virtualization, power-efficient equipment, and smart distribution networks will help save power. Connected processes and real-time collaboration will help enterprises save time, reduce costs and reduce scope and impact of physical travel and transportation.

Smart Society
Power to the People
Summing it up

Valuable Pillars on which to Build the Smart Enterprise

NEC combines its advanced technologies, services and knowledge to help ensure the safety, security, efficiency and equality of society – enabling people to live brighter, more enriched lives.

Combining our capabilities and rich portfolios in Communications and IT, NEC can provide government authorities, individuals and enterprises with solutions that cover the full spectrum of their operations. The level of integration between NEC’s network, server, storage and enterprise communications solutions highlights the power of these technologies – and reinforces the benefits our customers receive.

Smart Enterprises leverage these technologies to optimize business practices, drive workforce engagement and create a competitive edge. This is how NEC empowers the Smart Enterprise, and why the Smart Enterprise relies on NEC.

NEC: ‘Orchestrating a brighter world.’

Business Agility
Empowering workforces and adaptive IT that is more resilient and responsive

Cloud Delivery
Providing flexible deployment that enable business growth and increase efficiencies

Collaborative Communities
Offering powerful communication tools for rich collaboration across organizations

Services Assurance
Ensuring highly available, secure and scalable infrastructure for business continuity
EMPOWERING THE SMART ENTERPRISE
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