

# Smart Enterprise Drivers

10 Strategic Realities  
Empowering the  
Smart Enterprise



# Smart Enterprise Drivers

**1** Ubiquitous Connectedness

**2** Collaborative Communities

**3** On Demand Deployment

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Find out NEC's Top 10 Strategic Drivers impacting your operations and learn how to navigate through these changes to gain competitive advantage, simplify your IT environment and enable Innovation. With so many disruptive changes to the market, the question now stands: will you transform smartly or be left behind?

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 to anchor new strategic investments. This starts with a stable, flexible foundation as your business changes to provide superior customer services with a more flexible, secure and mobile workforce.

Ensuring business continuity is one of the most essential facets of the Smart and Secure Enterprise. Hybrid Cloud Services, Real-Time Collaboration and Smart, High Available Devices are all 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.

“Top 10 Smart Enterprise Drivers offer valuable guidance to your organization and your operations in the coming years.”



**Paul Kievit**  
*President*  
*Head of NEC Enterprise Solutions EMEA*

# Ubiquitous Connectedness

1  
“The number of mobile devices exceeds the number of people on earth”

## A Mobile Workforce to accelerate Productivity

Today's employees work from just about any place at any given time: their office, home, between appointments or while traveling. Technology is advancing to ensure they remain fully integrated with their organization and customers - irrespective of where they are.

Location becomes unimportant, while availability becomes crucial in today's 'flat' organizations where access to specific expertise is critical to the business. Making staff omnipresent is key to smart enterprises who want to operate efficiently and effectively in fast-paced business environments.



## Smartly Available - Always, Everywhere

Smartphones and tablets overtake PCs as the most consistently used business tools. As workers and their enterprise become deskless, mobile technologies will continue driving technical innovation and new services to smartphones. Communications, data, and business applications 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 smartphone has become the standard form factor for developing portals and business apps.

## The Network is the Organization

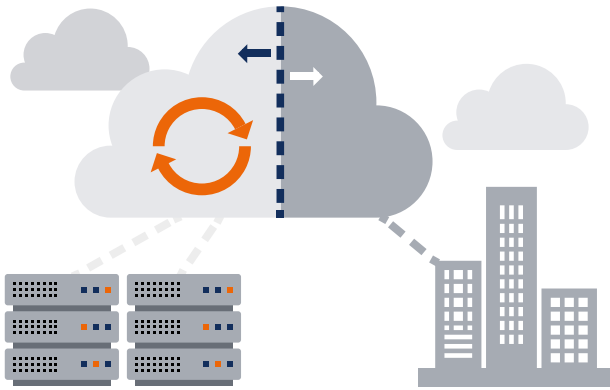
Increasingly, a company's coherency is determined by the intelligence of its network. The network becomes the organization, with wireless tentacles embracing location-aware services for tracking, tracing, safety and security, and serving its customers with mechanisms like Near Field Communications.



# Collaborative Communities

"Smart enterprises pool the best available skills to gain an edge over their rivals"





## Better Together

Present markets demand swift responses to events and queries, requiring productive interaction between employees wherever they may be. Smart enterprises pool the best available skills in their organization to make project more successful and gain an edge over their rivals.

## Driving productivity and reducing latency

Informed and connected workspaces drive productivity and reduce latency, from product development to customer care. Unified Communications and Collaboration tools allow disparate teams to work together in real time and enable individuals to interact efficiently and effectively with co-workers, clients and suppliers. With conferencing and file sharing made easy, collaboration sessions become the de facto standard for office communications, eliminating the need to travel to meet in person.



## Reinventing engagement models

Formal and informal groups become collaborative communities that are instrumental in reaching personal, group, and organizational goals. Besides synchronous collaboration, asynchronous solutions such as team workspaces keep everyone on the same page, tracking projects, documents and ideas in a central repository that anyone of the community can access in their own time.

The power of social networking and communications are driving organizations to integrate these into their business processes. Smart enterprises will reinvent their customer engagement models, reshaping their business approach from revenue to customer driven and delivering customers a unique, personalized experience.

# On Demand Deployment

“Close the Gap between  
Business Needs and what  
ICT can deliver”



## Instant Gratification

The current “On-Demand” Generation, does not want or have to wait for anything. They get their knowledge, information and entertainment instantly, on demand. No desire to collect, manage or maintain. No need to memorize or arrange. The world is at their fingertips and at the point of need they engage in real time to get what they need.

Used to being served instantly, they force businesses to be nimble and agile. The level of responsiveness required is changing business dynamics dramatically, due to the need for instant delivery and the customization options demanded.

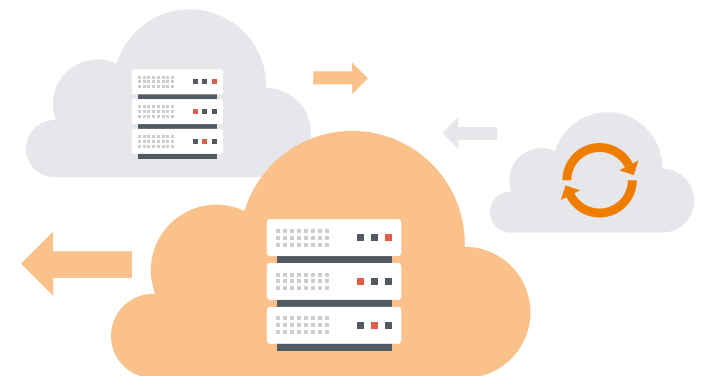


## Pay for What you Use

Modular services, pay per use and flexible deployment models allow businesses to invest in what is needed now, trimming up-front costs and leaving options open for future expansion. Smart enterprises align their resources with business requirements. To remain cost-competitive, many organizations are managing their OPEX and looking to replace, revitalize or outsource their IT infrastructure as cloud computing shapes the market.

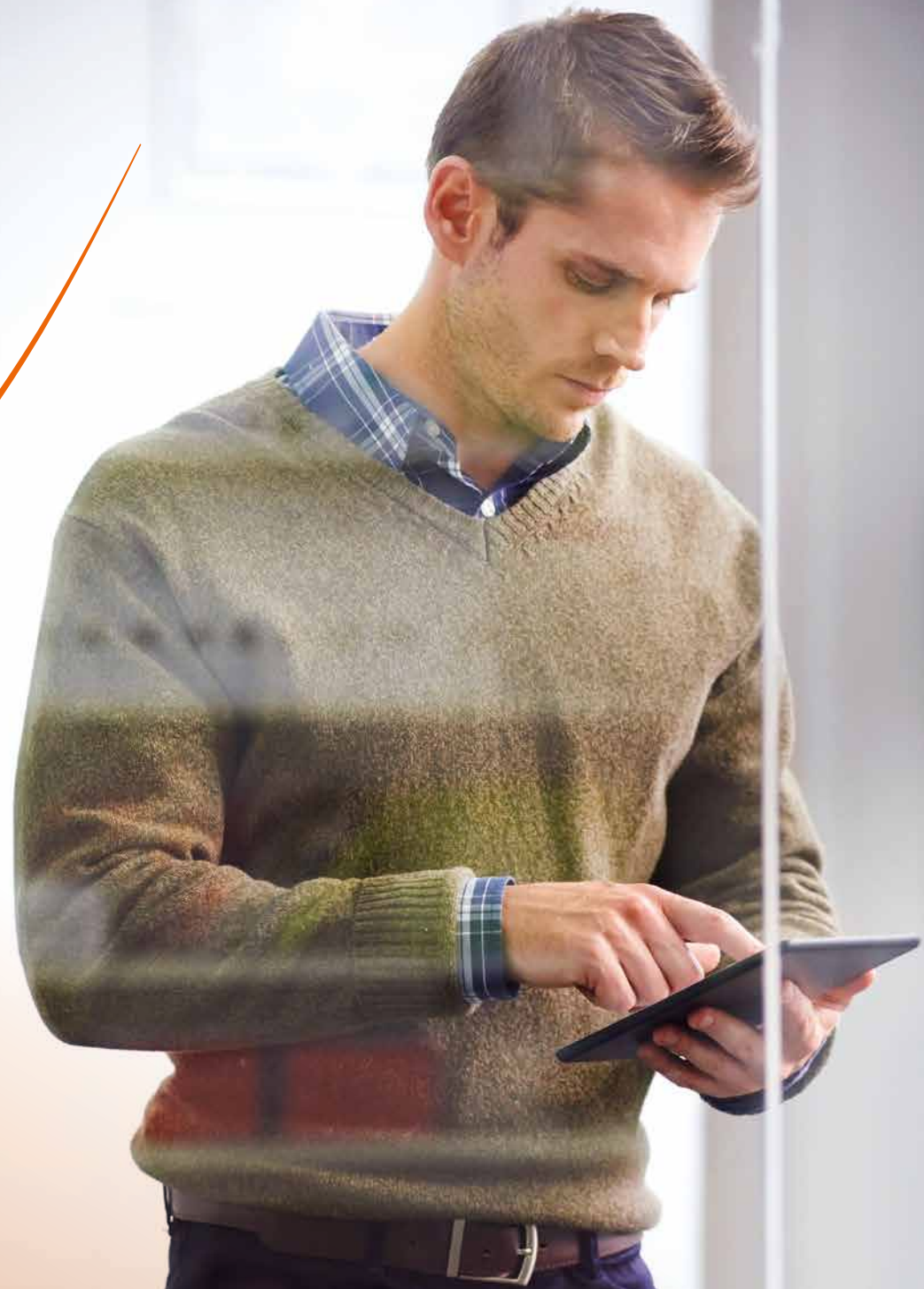
## Serving scalability and customization

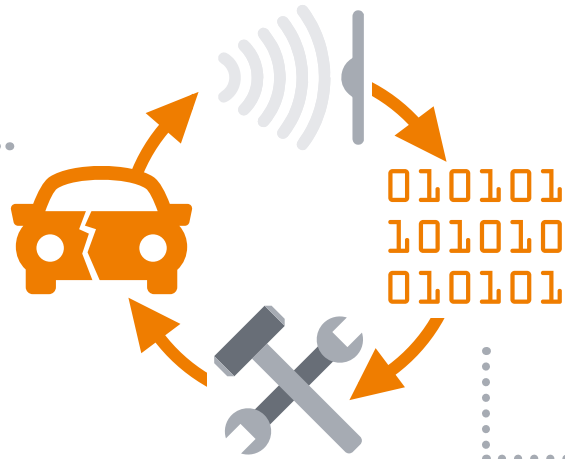
Data center customers increasingly require simplicity, flexibility, and scalability. With increased consolidation, virtualization, and outsourcing, the traditional data center environment is shifting to the ‘hyperscale’ data center of tomorrow. Rather than building ‘monolithic’ platforms, design is implemented around distributed processing frameworks. Bringing it all together requires software and tools that automate node deployment, recovery from failure, and easy-to-manage and easy-to-monitor tools, preferably remotely.



# Contextual Analysis

“Converting Data  
into Intelligence”



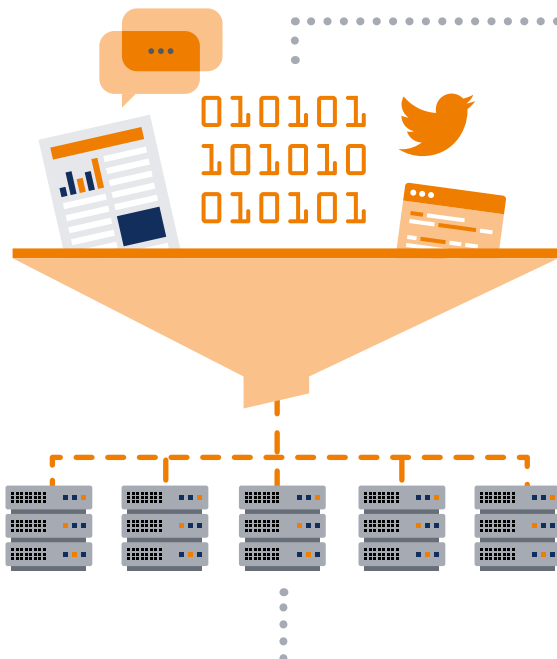
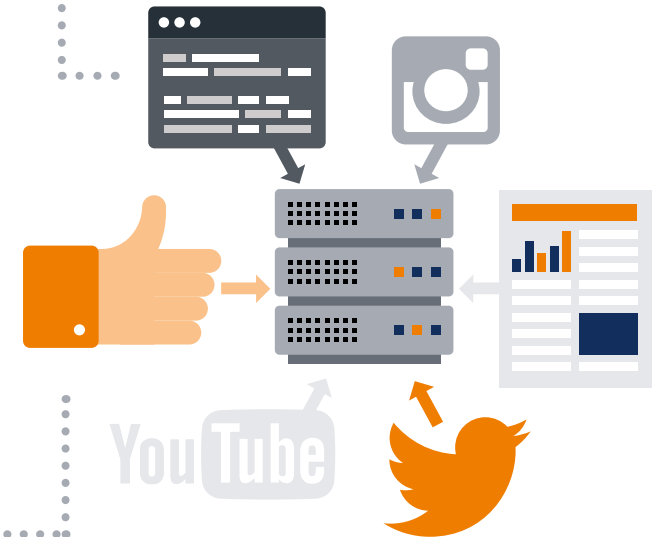


## Big Data = Intelligization

“Visualization” is realized by converting Big Data of real life “physical things”, “contexts” and “people” into digital “information” by means of sensing technology and manifesting it in a meaningful way. The digital information is then “analyzed”, making full use of artificial intelligence software, servers and processing powered by sophisticated algorithms. Collecting the information enables the production of “knowledge” which can lead to the capability of predicting or “wisdom”.

## Manageable Storage Solutions

Enterprises increasingly deploy Big Data captured from mobile devices, social media, log files, emails, images and video, to drive better business intelligence, product development and customer service. Contextually aware presence allows employees to receive information on content, tools, and services. Machine learning enables systems to learn from data and act autonomously rather than follow programmed instructions.



## Empowering a Data-driven Enterprise

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 information. Software including media processing techniques is becoming more sophisticated than ever and based on artificial intelligence technologies.

# Internet of (Every)Thing(s)

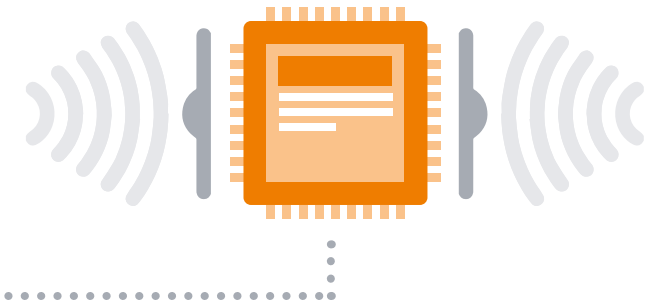
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"By 2020, 50 billion devices  
will be connected"



## From Analysis to Understanding of Contexts

Cost reduction of sensors and improvement of processing technologies are spurring data collection and information extraction, with ultra-compact and intelligent sensors being installed everywhere. Connected objects that contain embedded technology to sense or interact with their internal state or external environment (Internet of Things) enable virtually every activity to be managed more efficiently while delivering higher quality.



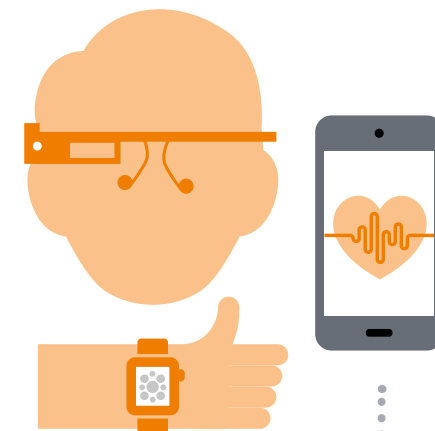
## Standing out from the Crowd

Sensing, location detection, data matching and pattern recognition all aim to empower accurate and swift decision making. Precision farming already uses environmental sensors to maximize yields at reduced cost, minimizing fertilizer, pesticide, and water waste.

Biometrics is the fastest, most efficient way of identifying people. Fingerprints, facial definitions, body contours, retinal scans, and voice files are composited through software to recognize and identify individuals in crowds in a mere second.

## Richer Insights and Safer Living

Robotics and wearable technologies expand individuals' abilities and enhance memory and judgement, while driverless cars and other machines do their job flawlessly and only when needed will ask humans for support. 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 monitoring kits 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.



# Smart Workspace



“A Bright Horizon for  
Hybrid Clouds”



## Not just Private. Not just Public. The future is Dynamic Hybrid

As approaches to virtualization of computers, networks, I/O and storage devices continue to mature, infrastructures become increasingly software-driven, and IT management more efficient. This enables services to be provided dynamically according to individual load and function requirements. Applications and cloud computing reduce the need to build proprietary systems and free companies from legacy issues.

## Orchestrating, Managing Data & Services

Businesses will increasingly turn to hybrid clouds to enable scalable business processes. While many business owners embrace the use of public clouds for less sensitive applications, they prefer private clouds for their vital processing tasks.

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



## From Device-centric to User-centric Work beyond Boundaries

The Smart Workspace is dynamic, flexible and user-centric. It allows users 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, increases security and enables centralized management of multiple terminals thus reducing operational costs.

Cloud-dependent technologies, such as Internet of Things (IoT), real-time analytics, and collaboration will continue to evolve and enrich the end-user's workspace and his relationship with colleagues and customers.

# Open Philosophies

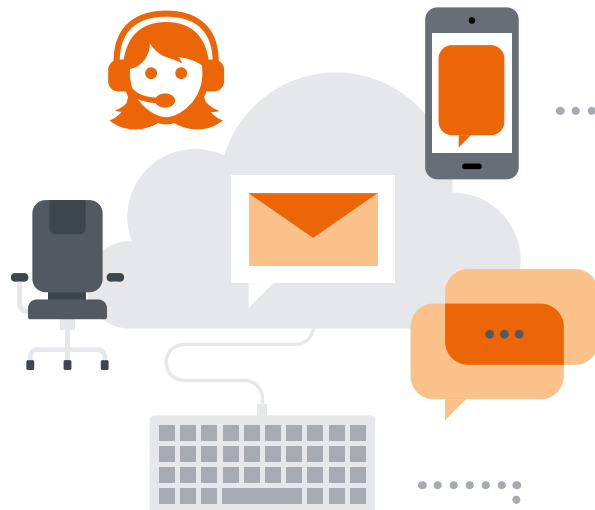
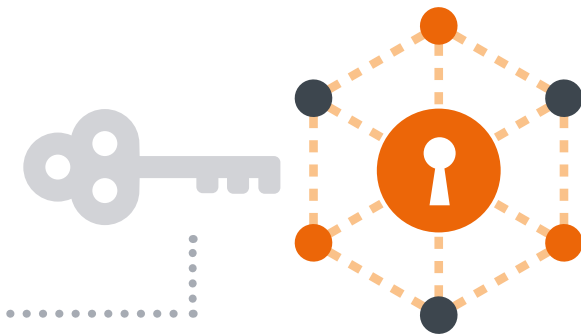
“The Power of Co-Operation  
and Co-Creation”





## Key to Business Responsiveness

Next-generation computing and Internet networking – connected computing – promises great potential as we move toward an Internet of Things-enabled future. But first, the Smart Enterprise must improve interoperability and communications protocols, common processing and programming interfaces, and tools to dissolve the barriers between different computing platforms, devices, and operating systems.



## Integration Flexibility unlocks Business Value. Untied.

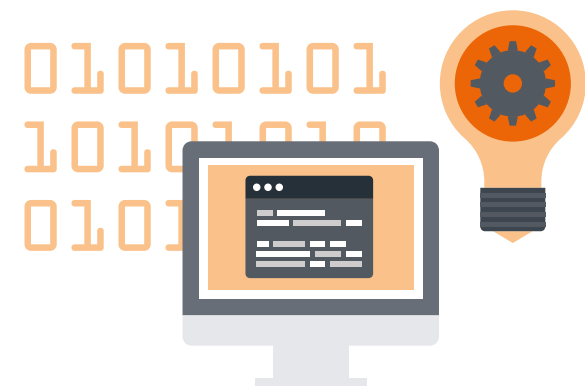
Open standards provide flexibility in internetworking and in deploying industry-standard servers and endpoints from multiple sources. Communications and Collaboration (UC&C) solutions built on open architecture help Smart Enterprises leverage their existing technologies while enabling them to add ‘best of breed’ and ‘best in speed’ elements irrespective of vendor or geography.

Open SIP has 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 Stack, Open Source Software for building and managing cloud computing, lets users deploy virtual machines and other instances which handle different tasks for managing a cloud environment on the fly.

## 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.

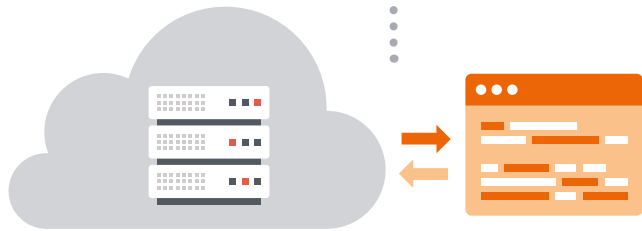
Open computing platforms – hardware and software – are essential for the journey towards on-demand computing. The role that open standards play will continue to be central to the evolution towards more responsive, focused and resilient on-demand capabilities.



# Software Defined Anything

"A Value Shift  
towards Software"





## Dealing Effectively with Business Dynamics

More and more equipment, functions and processes are software-driven. This new reality is referred to as 'Software Defined Anything' (SDx). In 'Software Defined' systems the control plane is abstracted from the underlying hardware and is then applied as software to manage most of the equipment (e.g. in a data center).

## Smart Enterprises serve their Customers Better

The ultimate goal of SDx is a more service-focused infrastructure that increases efficiencies and enhances IT service delivery. Smart enterprises see SDx as differentiator to serve their customers better, enabling IT departments to become more agile and efficient and deliver the best possible service to users and customers, whose expectations are ever increasing.



## Making Enterprise Networking Agile

Software-defined infrastructure (SDxI) is the next-generation cloud infrastructure that can connect and manage the growing number of software-defined devices and applications to their networks, each other, and ultimately to end users.

Software Defined Networking (SDN) makes network devices programmable and dynamic, to respond more quickly to changing business requirements. SDN allows central management of network policies and resources. This operates through a software-based controller that works with hardware independent of vendor. Social media, mobile devices, and cloud computing are all pushing traditional networks to their limits. SDN has the potential to revolutionize legacy data centers by providing a flexible way to control the network so it can function more like the virtualized versions of computers and storage today.

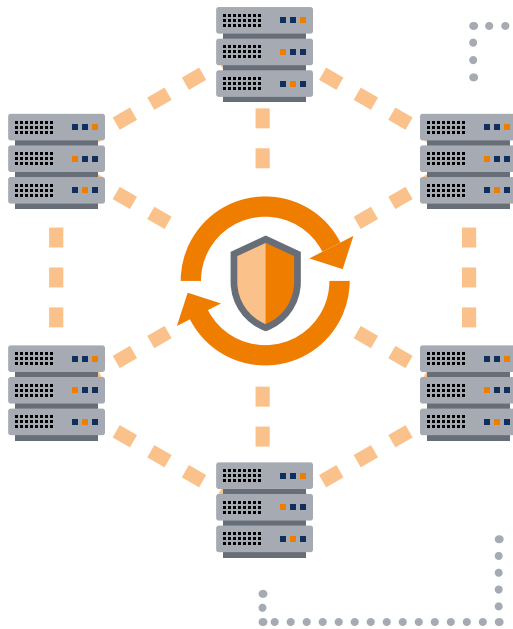
# Holistic Business Continuity

“More Interconnected, More  
Need to Actively Protect”



## Assuring Services in our Digitalized Now

In today's business world, seconds matter. Downtime in critical applications has wide ranging economic, security and legal consequences. This is where an always-on continuously available solution that proactively prevents application downtime and data loss is required.



## Ensuring Continuous & Safe Operations

While various effective software-based fault tolerance solutions are available, a hardware-based end-to-end approach gives uninterrupted service in the event of an outage, without compromising performance.

Another challenge is the rapid growth of quantification and digitalization of data. With more data flowing across networks and devices, risks of data leaks and breaches grow and fail-proof data security proves essential. With privacy protection being key in managing data and ensuring anonymity, the importance of security management of private and social infrastructures will grow.

## Preserving Data in the Face of Disaster

The Smart Enterprise must build security into all business processes, end-to-end. IT managers need to protect data and applications – from hardware, OS and application failures to sudden natural disasters. End-to-end disaster recovery and readiness for fast recovery of applications and data becomes top of the list, regardless of organization size and especially in Hybrid IT environments. Choosing the right Disaster Recovery strategy is a key investment in future stability for every company.



# Safe and Smart Society

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“ICT that supports a safe and enriched life”



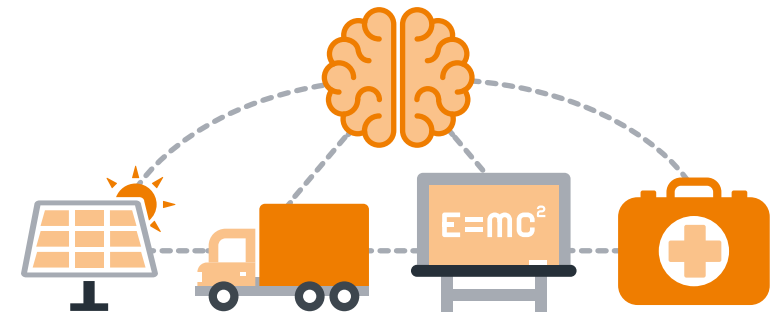


## A World Recreated

Due to people, physical things, and context becoming constantly connected, large transformations will take place amongst companies and users. On top of this, 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. Industry structures are evolving with new businesses emerging from the organic linkage of people, physical things, and processes with IoT. Rapidly growing digitization of production and sales, diversification of consumption experiences and their corresponding needs are becoming more complex. This evolution needs a new digital platform.

## Next-generation Ecosystem

With networked ecosystems our environments will become more aware, responsive and connected. Smarter storage, distribution and use of energy in buildings, vehicles, and networks, will enhance environmental and economic performance. Artificial Intelligence will support real-time prediction and guidance of traffic. At an individual level education and healthcare solutions will enhance learning and wellbeing. Connected processes and collaboration will save time and reduce costs, scope and impact of physical travel and transportation.



## Safe and High Efficiency ICT-based Lifeline

In a smart society where IoT has become commonplace, communication and coordination across locations will realize a safer and more secure daily life. Instead of simply being a product provider, becoming a partner that fully supports consumers will increase the opportunities for business more than ever – with new businesses emerging from the organic linkage of people, things and processes through IoT.

## 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.



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