



THE NEXT PAGE IN **EDUCATION**

IT and **communications** solutions
for elevated performance

TAILORED TO ACADEMIC NEEDS



PUT NEC'S UNIQUE SYNERGY TO WORK FOR YOUR INSTITUTION

Difficult challenges face educational institutions today. Digital-age students expect a secure, technology-enhanced learning environment that simplifies access to high quality content and supports personalized attention. Faculty and staff require the means to communicate and collaborate with mobile flexibility that makes them reachable and lets them work at any location. Budgetary pressures call for cost-effective technology that can pay for itself over the short term and establish a solid foundation for coming innovations, while securely handling increased data volume and applications.

NEC is dedicated to addressing these challenges and deliver solutions tailored to your precise needs. The difference is our powerful synergy of voice and data communications, networks and data storage solutions, enabling you to enrich the academic experience, enhance communication and collaboration, safeguard information, and support physical security.

Furthermore, by integrating and interoperating with your existing technology and assets, our solutions protect your investment, while paving a smooth migration path for the future.

When you choose NEC, you are choosing one of the leading global ICT providers and the only one that spans the full spectrum of Computers and Communications expertise. By sharing this competitive advantage with you, we not only optimize your performance today, but also prepare you to benefit from emerging technologies such as cloud computing.

In an open educational marketplace, technology has become essential to differentiate your institution in the eyes of candidates and donors. With our innovative customized solutions, you can elevate performance in every way. Learn more about why NEC is the partner of choice for progressive educational institutions around the world.

CHALLENGES & SOLUTIONS

1. For an attractive learning environment (Pg. 4)

Solutions include:

- Unified communications
- Conferencing
- Digital signage

2. For improved efficiency & cost reduction (Pg. 6)

Solutions include:

- Unified communications
- Conferencing
- Wireless LAN
- Server virtualization

3. For security and safety (Pg. 8)

Solutions include:

- Fault-tolerant information and communications technology (ICT) infrastructure
- Virtualized desktops
- High availability software
- Biometrics & tele-surveillance technology

4. For environmental consideration & compliance (Pg. 10)

Energy efficiency

5. For elevated performance throughout your institution (Pg. 13)

Solutions at a glance

6. For the future — emerging technologies (Pg. 14)

- Cloud Communicator
- FieldAnalyst
- ProgrammableFlow

7. Ten reasons to choose NEC (Pg. 15)



EDUCATIONAL INSTITUTIONS CHOOSE NEC

For an attractive learning environment

Learning Environment Challenges

- Differentiate institution
- Enrich the learning experience
- Enable students to access resources from any location
- Nurture a cohesive campus community
- Provide information in public spaces

STAND OUT IN STUDENT SATISFACTION

When students and parents look at schools, their check-list now includes technology-related criteria such as digital connectivity. At the same time, online resources are making it easier to compare every aspect of performance and assets. To increase attractiveness in such a competitive environment, many schools are leveraging technology to enhance all facets of their offering.

A powerful answer in this regard is unified communication. This solution can provide conferencing that combines video, voice and text communication — enabling a new level of collaboration and communication both within your school and beyond. And by integrating unified communications applications with network systems, NEC can help add interactivity to the curriculum, not to mention remote instruction capabilities.

Wireless LAN solutions are also becoming increasingly essential to meet student expectations and allow easy exchange of information, ideas and data by laptop and mobile phones.

Another way to appeal to prospective students and enhance productivity is digital signage. In addition to news and lecture information, this electronic medium can present interactive building maps and content tailored to each department.

Ask us how these and other solutions can elevate your performance to differentiate your school and enhance student satisfaction.



CASE STUDIES

University of New Mexico

USA

The University of New Mexico (UNM) serves more than 32,000 students and offers more than 200 degree programs. It has four branch campuses and operates New Mexico's only teaching hospital. UNM sought to build connectivity, especially wireless connectivity, for its complex environment which combines academic and healthcare aspects. It needed technology that would meet the sophisticated needs of staff and faculty as well as students. The solution was a convergence of voice and data networks through a long-term migration to VoIP. By creating a communications environment that integrates with wireless and data technologies, this allows students to connect wirelessly anywhere, anytime, and it gives more mobility to employees who want it. IP technology also delivers online courses to students and routes data to clinicians in the University's healthcare system. Additional benefits include a smaller infrastructure footprint, cost savings, greater business continuity, and more speed, reliability and resilience.



University of New Mexico

Technical University of Denmark

Denmark

The Technical Center of Denmark (DTU) is the leading educational center for engineers and technical science in Denmark and has more than 4,500 employees. DTU wanted to upgrade to an integrated communication system using state-of-the-art technology that would enhance the guest experience, increase efficiency and drive profits. Having advanced communication capabilities both internally and externally was also vital for DTU to maintain its status as an educational pioneer. To meet these challenges, NEC installed an SIP communications server with components that allow mobile users to activate presence, indicating their availability regardless of location. This supports flexible work styles, allowing people to do their job at the office, at home, in lecture halls, and so on. In addition to providing more flexibility and mobility for staff, NEC's solution enables better service for students and visitors, while using cutting-edge technology to improve system management efficiency.



Technical University of Denmark

Mark Reynolds

University of New Mexico, IT Director

"I think it's a great partnership. I believe in NEC. NEC has the knowledge and depth to understand my needs."

John H. Lauenstein

Technical University of Denmark
Telephony Manager

"We value being notified about new techniques and development of the market — this enables us to modify and adapt our solution in line with the development. The right solution was offered at the right time and we have not had any regrets about the solution."

EDUCATIONAL INSTITUTIONS CHOOSE NEC

For improved efficiency & cost reduction

Efficiency & Cost Reduction Challenges

- Improve communication so faculty and staff can work more efficiently
- Reduce costs of travel and commuting while saving time
- Streamline access and response to calls from outside
- Upgrade server capacity while reducing costs

TURN THE CORNER ON EFFICIENCY

In a typical school, teachers, staff and students move between several buildings. This can impede communication, both for those who work and study on site and for people outside trying to make contact.

A powerful technology for overcoming these obstacles is unified communications (UC). With UC you can increase efficiency through mobility solutions that make people reachable via a single number at any location. In addition, UC offers rich, collaborative conferencing which combines voice, video and instant messaging, while reducing costs in terms of travel and time.

To optimize call handling capability both internally and for outside inquiries, contact centers can provide call routing, directory

assistance and help-lines. Callers will appreciate quick access to department-specific assistance with services such as admissions, registration and financial aid.

As data and applications continue to swell in volume, institutions require reliable server and storage solutions that boost capacity and improve return on investment. Server virtualization can dramatically reduce the number of physical servers and decrease costs of hardware, maintenance, power and air conditioning while minimizing administrative workloads.

Ask us how these and other solutions can elevate your performance by boosting efficiency and cutting costs at your institution.



UNIVERGE SV8500



CASE STUDIES

The University of Parma

Italy

The University of Parma has 30,000 students, 1,100 lecturers and 1,000 technical and administrative employees. The University wanted to upgrade their communications infrastructure to reduce costs and improve efficiency. NEC delivered an IP-based solution using the UNIVERGE Communication Server – initially to operate in combination with an existing iS3000 network, but eventually to replace it. An MA4000 management solution made it possible to achieve a smooth migration to IP telephony while increasing overall productivity. Thanks to a user-friendly interface, the MA4000 requires very little training. The implementation itself took only two working days. The first day was to check the existing PBX configuration, making adjustments for a smooth transition. The second day was used to train the administrator and perform a functionality test. The resulting network enables seamless interoperation with existing assets while raising network management efficiency and supporting productivity enhancing applications such as unified communications.



The University of Parma

College of the Canyons

USA

College of the Canyons is a community college in California with more than 24,000 students. The College faced rising enrollment at the same time that its state funding had been reduced. Calls from outside were increasing, with switchboard operators taking about 1,000 incoming calls on ordinary days and double that number during registration periods and special events. An auto attendant was in operation but call waiting times continued to lengthen as the system reached its limits. Therefore, the College sought the most cost-effective way to improve customer service while leveraging its existing resources. The answer was a contact-center solution called UCB (UC for Business). With its robust features for contact-center and front-desk operations, UCB alleviated the bottleneck in incoming calls while allowing dynamic allocation of resources. UCB also has presence, which lets switchboard operators see who is available so they can easily and quickly make informed decisions before transferring calls.



College of the Canyons

The University of Parma

"The implementation only took two working days. The resulting network enables seamless interoperation with existing assets while raising network management efficiency and supporting productivity enhancing applications."

Robert Betancourt

College of the Canyons, Telecom Coordinator

"They totally understood our situation and how tough it can be to explain to college decision makers the need for more resources in a recessionary environment. NEC's solution is helping us solve some of our challenges and do things better utilizing what we have."

EDUCATIONAL INSTITUTIONS CHOOSE NEC

For security and safety

Security and Safety Challenges

- Detect intruders and prevent damage
- Assure continuity of IT services
- Guard against malicious intrusion into IT systems
- Protect confidential information
- Improve emergency response capability

BECAUSE KNOWLEDGE SHOULD BE ACCESSIBLE YET SAFE

Educational facilities pride themselves on being accessible to their communities. At the same time, campuses and school buildings are often exposed to unscrupulous individuals who threaten the safety of people and assets.

The wise approach is to take pre-emptive measures rather than deal with undesirable consequences after the fact. For this purpose, integrated security solutions include biometric fingerprint identification, facial recognition technology, surveillance and behavior pattern analysis. The Virtual PC Center (VPCC) solution further enhances security by eliminating local storage of confidential information at workstations.

Continuity of services is another important consideration in educational environments. NEC offers complete infrastructure using

hardware and software all from the same manufacturer. Built around the Express5800 Fault-Tolerant Server, this achieves 99.999% reliability for uninterrupted performance with remote data replication through virtualization of servers and PCs. Together with real-time backup or High Availability software EXPRESSCLUSTER, these also provide emergency recovery capability.

In emergency situations, Unified Communication mobility and messaging can quickly notify students via the mobile network and reduce response time by tracking the location of callers' IP phones.

Ask us how these and other solutions can elevate your performance by giving your institution the security and safety you seek.



FT Server R320



CASE STUDIES

University of Arizona

USA

The University of Arizona (UA) is a top-ranked research institution with more than 38,000 students and more than 13,000 faculty and staff. Although UA had a number of small WiFi hotspots on campus, coverage was insufficient to permit seamless mobile connections. The challenge was to create a secure campus-wide wireless network. The solution was a three-phase deployment of 4,560 wireless access points to cover virtually all campus buildings, supported by remote monitoring and management. The network design includes security that incorporates 802.1x authentication using WPA2 and WPA, AES and TKIP encryption to produce a wireless system that is more secure than the University's wired environment. It also lays the foundation for value-add technologies such as Unified Communications applications, including presence, dual-mode mobile devices and RFID asset tracking.



University of Arizona

Tower Hamlets City Learning Centre

UK

The Tower Hamlets City Learning Centre offers state of the art information technology facilities to students at local schools and is widely regarded as a source of inspiration and innovation. The Centre needed to enhance its equipment by replacing the previous system and increasing the number of workstations dedicated to teachers and students. A secure system was a requirement to avert theft of physical assets and prevent unauthorized access to information. NEC tailored a solution based upon the NEC Virtual PC Center (VPPC) incorporating thin client devices and Express5800 120Ri-2 servers. By providing a dynamic, flexible solution utilizing advanced thin client technology, the City Learning Centre was able to enhance security, reduce total cost of ownership, enhance performance, improve manageability and improve energy efficiency. The technology guarantees enterprise data protection while enabling authentic user mobility with access to a personalized work environment regardless of location.

Tower Hamlets Learning Centre



Michele Norin

University of Arizona,
University CIO and executive director of University Information Technical Services (UITS).

"We now have a world-class secure and scalable wireless LAN-based voice and data network. This is the largest wireless system of any university as far as we know. An institution known for outstanding research like ours must offer its students outstanding technology and that includes a wireless network."

Darren Coghlan

Tower Hamlets City Learning Centre, Manager

"The Virtual PC Center solution provided by NEC has been outstanding in meeting our complex requirements in terms of enhanced security, value for money, manageability and energy efficiency to keep up with the City Learning Centre's demanding ICT needs. We have developed a mutually beneficial relationship with NEC which has exceeded our expectations and delivered cutting edge technology to enhance education."



EDUCATIONAL INSTITUTIONS CHOOSE NEC

For environmental consideration & compliance

Environmental Consideration & Compliance Challenges

- Reduce energy consumption
- Comply with environmental regulations

A NO-COMPROMISE APPROACH TO ENVIRONMENTAL CONCERNS

NEC is committed to creating a sustainable society through environmental management that will contribute to reducing the environmental impact of society as a whole, by providing environmentally sound products and services.

For educational institutions seeking to shrink their environmental footprint, we offer powerful solutions that work in three ways. First, by saving energy through the use of low-power components and efficient system design. Second, by monitoring and scheduling power consumption to avoid waste while meeting actual energy needs. And third, by downsizing and using cooler-running equipment that cuts auxiliary energy usage for air conditioning.

Prime examples are [ECO CENTER](#) data center servers and [NEC SigmaSystemCenter](#) platform management software which optimize power consumption through hardware, virtualization and resource allocation technologies. Another approach is conferencing and desktop virtualization for [telecommuting](#), which minimizes the need for travel, thereby helping to control CO2 emissions and improve air quality.

NEC equipment is designed and manufactured with the entire product life-cycle in mind and in compliance with the latest industry-recognized ecological standards.

Ask us how to enhance your institution's sustainability and ease compliance with environmental regulations.

NEC WAS SELECTED AS ONE OF THE "GLOBAL 100 MOST SUSTAINABLE CORPORATIONS IN THE WORLD" IN 2011.*

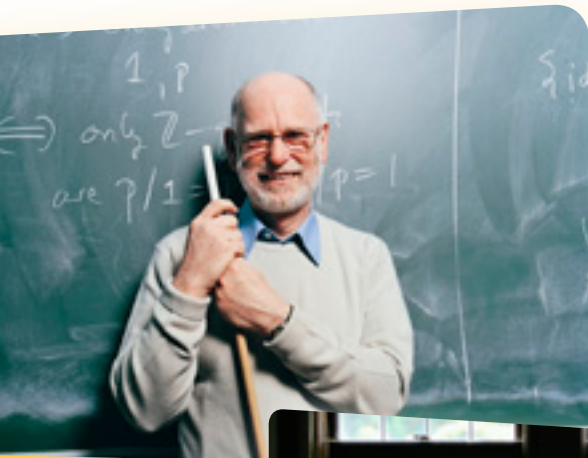
*By the Corporate Knights of Canada in recognition of outstanding performance on environmental, social and governance issues.



*The energy efficient
data center server line
NEC Express5800/
ECO CENTER*



IMPROVE EVERYTHING,
EVERYWHERE, FOR EVERYONE

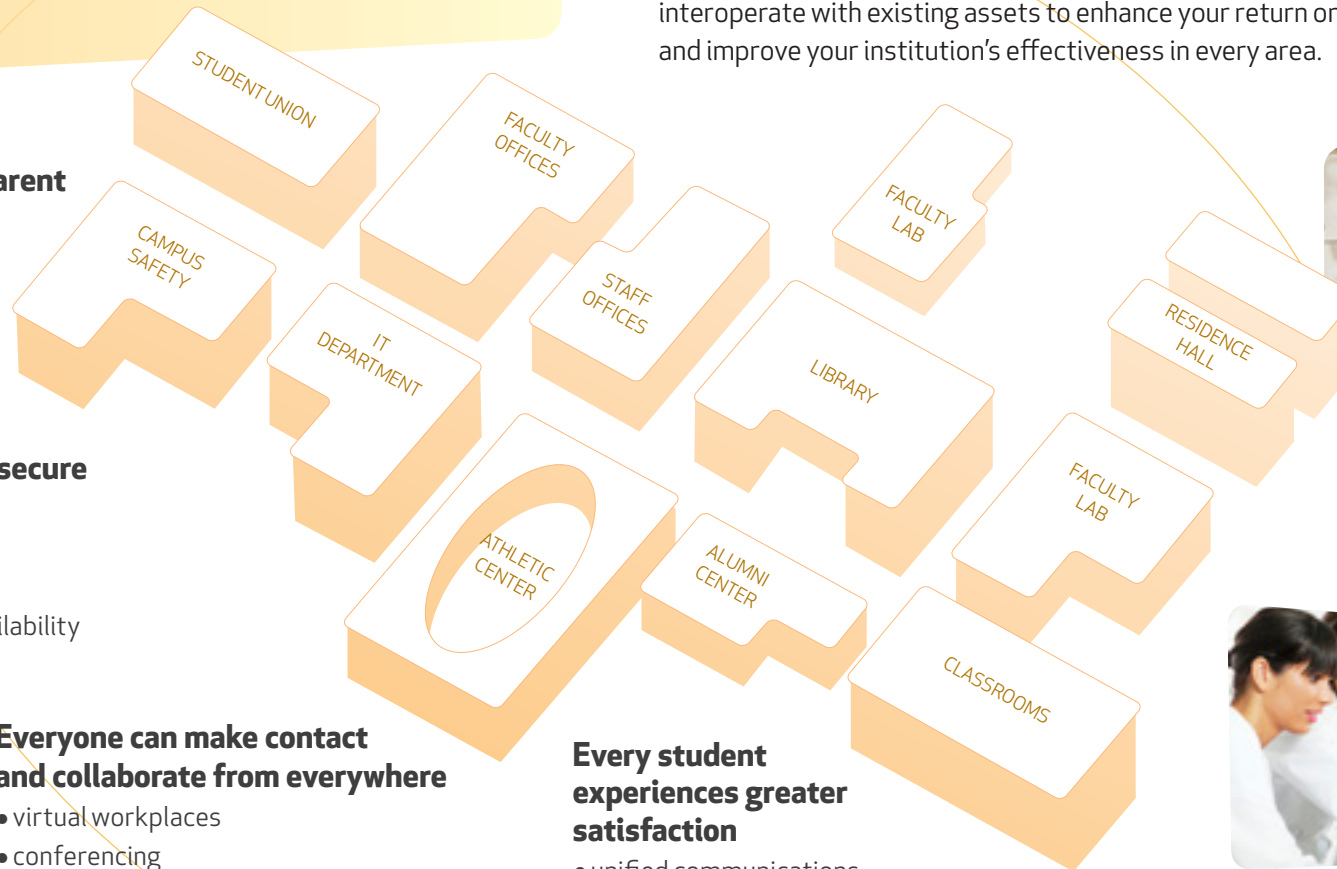


Everything works together

Tailor-made solutions for integrated platforms, servers, networks and communications

FOR ELEVATED PERFORMANCE THROUGHOUT YOUR INSTITUTION

Through our Elevate Performance™ methodology, NEC offers complete solutions tailored to a wide range of education needs. NEC products and solutions interoperate with existing assets to enhance your return on previous investments and improve your institution's effectiveness in every area.



Everything is transparent

- tracking of locations of mobile devices



Everything is accessible yet secure

- server virtualization
- desktop virtualization
- biometrics
- fault tolerant server for 24/7 availability



Everyone can make contact and collaborate from everywhere

- virtual workplaces
- conferencing
- mobility



Every student experiences greater satisfaction

- unified communications
- wireless LAN solutions
- mobile solutions
- digital signage



Every employee is more productive

- unified communications
- contact center



Every system helps reduce costs and raise sustainability

- server virtualization
- desktop virtualization
- unified communications
- energy saving server and software



NEW HORIZONS IN ACADEMIA

Stay Ahead of the Curve

With NEC as your partner, you are ready to implement and manage innovative technologies to match your strategy, while elevating your current performance with cutting-edge products and applications. For example, our current solutions are ready for cloud computing, while our emerging solutions extend its benefits to more areas of your institution.

We continuously introduce cutting-edge research results into product development, while creating new technologies for tomorrow. Each year, we spend almost 8% of our annual sales on R&D. At our R&D sites throughout the world we develop solutions to meet the demands of customers in each region.



ProgrammableFlow Switch



FieldAnalyst



Cloud Communicator

Cloud Communicator

The NEC LT-W Android™ Cloud Communicator is a dual-screen book-style tablet that gives people the freedom to move, study and work from different locations. It uses the open-platform Android™ OS, offering a rich variety of existing applications and facilitating new-application development. Communication features include wireless, LAN, Bluetooth™ and 3G as a built-in option. The LT-W offers outstanding potential as a mobile device that supports learning as well as communication and collaboration by faculty and staff.

FieldAnalyst

The NEC FieldAnalyst is a facial-recognition system that can distinguish the age and gender of the person looking at a screen. Messages can then be tailored to boost relevance or prompt interaction. In the academic environment, potential applications include integration with digital signage or self-service kiosks to give prospective students focused messages or assist in registration. With its surprising recognition accuracy, it can dramatically improve the efficiency of information delivery.

ProgrammableFlow

The ProgrammableFlow OpenFlow-based network and product family streamlines datacenter network management through increased automation, reduces operational costs and accelerates delivery of services. For the first time, this enables your network to proactively address application performance and perform self-repair with automated re-configuration in the event of hardware failure. This eliminates the need for human intervention, contributing both to high availability of critical business processes and decreased network management costs.

WHY NEC? 10 REASONS

NEC Corporation is one of the world's leading providers of Internet, broadband network and enterprise business solutions. The NEC Group employs more than 115,000 people worldwide and owns more than 68,000 patents. Our portfolio of products and applications can provide complete solutions in virtually every area of education, tailored to the unique needs of each customer. There are many reasons to choose NEC. Here are the top ten.

- 1 Leading global ICT solution provider**
- 2 110 years of experience in IT and networking**
- 3 Financially stable enterprise committed to protecting customer investments**
- 4 Environmentally-friendly products and solutions save energy**
- 5 On the cutting edge of emerging areas such as cloud computing**
- 6 Proven track record in educational solutions and consulting**
- 7 User-centric approach accelerates business processes**
- 8 Commitment to open standards, ensuring optimal flexibility**
- 9 Unsurpassed technical support and reliability**
- 10 Local presence supported by global vision**

ABOUT NEC CORPORATION

NEC Corporation is a global provider of Internet, broadband network and enterprise business solutions dedicated to meeting the specialized needs of its diverse and global base of customers. NEC delivers tailored solutions in the key fields of computer, networking and electron devices, by integrating its technical strengths in IT and Networks. The NEC Group employs more than 115,000 people worldwide.

For additional information, please visit the NEC home page at: <http://www.nec.com>



The NEC logo is displayed in a bold, blue, sans-serif font. The letters are thick and closely spaced, with the 'N' and 'E' being particularly prominent. The background is white with large, overlapping, semi-transparent yellow rectangular shapes on the left and right sides, creating a modern, abstract design.

NEC

Empowered by Innovation

www.nec.com/education