



NSTDA Migrates to Cloud and Mobility, Enabling World-Class R&D supported by Cisco Solutions



In collaboration with
Intel® Xeon® processor



Challenge

The National Science and Technology Development Agency (NSTDA) of Thailand reports to the Ministry of Science and Technology and is governed by the National Science and Technology Development Board. NSTDA is an umbrella organization that plans and executes four mandated missions: research and development, technology transfer, human resources development and infrastructure development. NSTDA is comprised of four national R&D centers: the National Center for Genetic Engineering and Biotechnology (BIOTEC), the National Metal and Materials Technology Center (MTEC), the National Electronics and Computer Technology (NECTEC) and the National Nanotechnology Center (NANOTEC). In addition, NSTDA reaches out to other research organizations and universities through joint collaboration, contracted research, and other mechanisms to ensure the best resources are being captured for the country's innovation needs. To tie all these organization together, the Technology Management Center (TMC) of NSTDA serves as a linkage between scientists and end users, and it provides applicable technology services. Briefly, NSTDA is a one of a kind national organization that distinguishes its roles from other research units in Thailand by acting as a bridge between the academic research and innovation requirements of industry.

NSTDA also reaches out to other government agencies, business and universities to allow local scientists to closely collaborate and satisfy the needs of agricultural and industrial sectors including automotive, computer, electronic, healthcare, textile, fishery, etc. in accordance with NSTDA's vision to be a key partner for a knowledge-based society through science and technology and to strengthen country's capability for competitiveness.

Internal ICT challenges

As NSTDA is mainly responsible for improving the country's capabilities in science and technology through technology transfer, human resources development, and infrastructure development, all these missions require modern ICT infrastructure so as to allow the organization move forward and ready for changes anytime.

One of the most important challenges for NSTDA is to develop ICT systems in order to accommodate mobility work. A reliable and secure infrastructure was therefore needed to support mobility work anywhere anytime, as well as the use of structured and unstructured information (Big Data), particularly for back-office applications such as ERP and ever-increasing R&D data, effective and environmental-friendly use of resources.

"Solutions in use for over five years at NSTDA included legacy servers and storage systems were no longer address NSTDA's requirements. Faced with the massive flood in late 2011, our systems could not accommodate disaster recovery plan. Moreover, system stability got decreased, while we could not make a full deployment of existing servers and devices. With the growing number of NSTDA employees, these solutions responded very slowly and couldn't be able to meet our increasing demand, plus it couldn't enable us to move to cloud in the near future. Therefore, we started to look for a new state-of-the-art solution that can satisfy both current and future requirements," said Warunee Leelatanawit, Director of Information System Department, NSTDA.

"With the growing number of NSTDA employees, these solutions responded very slowly and couldn't be able to meet our increasing demand, plus it couldn't enable us to move to cloud in the near future. Therefore, we started to look for a new state-of-the-art solution that can satisfy both current and future requirements,"

Warunee Leelatanawit
Director of Information
System Department
NSTDA



Solution

NSTDA incorporates five agencies as mentioned above, there are heterogeneous computer systems. Since 2012, with ICT Master Plan (2012-2016), NSTDA adjusted its policies to improve resource management such as using NSTDA Cloud Services and integrating disaster recovery site. For deploying new servers, NSTDA selected Cisco solutions designed for flexible and effective use of resources including Cisco Blade Server, Cisco Rack Server, Cisco Fabric Interconnect, Cisco SAN Switch and Cisco Network Switch.

"We decided to deploy Cisco's solution because its features helped improve the efficiency of our systems and enabled us to manage systems more actively and made the most benefits from resources. Above of all, Cisco's solutions could meet NSTDA's requirements." said Warunee.

"NSTDA has worked with Tangerine Co., Ltd., which has extensive knowledge, experience and expertise in consulting and designing services. Tangerine also understands NSTDA's needs and can offer the right solution for our plan to move to cloud, mobility and data security onwards"

Results

Executive Summary

- **Customer Name:** The National Science and Technology Development (Nstda)
- **Industry:** Government/More than 2,600 employees
- **Location:** Pathumthani, Thailand
- **Challenge**
 - Migrate organization to cloud and mobility
 - Accommodate employees' mobility works
 - Cope with disaster recovery plan

Solution

- Cisco Blade Server
- Cisco Rack Server
- Cisco Fabric Interconnect
- Cisco SAN Switch
- Cisco Network Switch.

Results

- Reduce cost of power consumption in data center
- Employees can access information more rapidly and securely
- Reduce costs of cabling for LAN/SAN and server management
- Accommodate more workloads with more flexibility
- Provide employees mobility work
- Improve the efficiency of server system

Employees can access information more rapidly and securely with stable systems.

With the Cisco's strengths, networking capabilities facilitated LAN and SAN integration, reducing connected cables while improving productivity and management agility. Virtual networking technology enabled efficient management of virtual networks and virtual servers, as well as servers that store hardware configurations (service profiles). This enabled faster movement and replacement of servers with ease.

"We decided to deploy Cisco's solution because its features helped improve the efficiency of our systems and enabled us to manage systems more actively and made the most benefits from resources. Above of all, Cisco's solutions could meet NSTDA's requirements."

Warunee Leelatanawit
Director of Information
System Department
NSTDA



Next Steps

"Having used 10Gbps Mezzanine card, we could virtualize it into over 50 network cards for servers and enable to support both LAN and SAN network, plus the storage management became more efficiently, which are very beneficial for NSTDA as our employees can access data stored on servers more rapidly and reliably than before." added Warunee.

Upgrading system to facilitate management system and reduce cost of power consumption in data center

After having deployed Cisco's solutions, our IT staffs are able to prepare, maintain, manage systems more effectively without delay, also they can get the most of server resources and capacity more efficiently.

"With Cisco's solution, it helps our IT staffs manage systems more effectively and be able to service more employees. It also helps reduce costs of cabling for LAN/ SAN and server management. Significantly, it helps reduce cost of power consumption in data center up to 30-40%, which is in line with NSTDA's green policy."

"Cisco's solutions can address our needs by accommodating more workloads with more flexibility. The servers can work very well with all internal applications and support our core business applications including R&D, design and engineering. This enables us to transfer technology, develop human resources, upgrade scientific and technological infrastructure so as to boost the capacity of country's competitiveness and sustainable development." said Warunee.

While technology is changing rapidly, NSTDA is growing continuously with the increasing number of employees and researchers. Therefore, NSTDA has to discreetly plan for resource management in the near future.

"We plan to accommodate future growth at a certain level. We've reserved 10-15% of resources for servers and storage systems in our primary data center, as well as 40-50% redundant capacity of other main devices to support growth of servers and storage in primary and backup data centers and cope with disaster recovery plan. By deploying virtual servers, we can quickly provision and manage servers, plus disaster recovery system can promptly support when a major disaster affects our primary data center." added Warunee.

NSTDA's ICT development project has been implementing from 2012 - 2016, focusing on integrating/ improving existing ICT systems while developing new systems. This includes developing an efficient and secure ICT infrastructure, enhancing ICT workforce to address technology's rapid changes. NSTDA plans to migrate its organization to cloud system and enable employees to work anywhere anytime through mobility and business continuity.

Product List

- Cisco Unified Computing System with Intel® Xeon® processor:
 - Cisco Blade Chassis (UCS 5100)
 - Cisco Server (UCS B200 M2)
 - Cisco Rack Server (UCS C210 M2)
 - Cisco Fabric Interconnect (UCS 6200)
- Cisco SAN Switch (MDS-9148)
- Cisco Switch (3750X)
- Cisco Switch (2960S)

"By deploying virtual servers, we can quickly provision and manage servers, plus disaster recovery system can promptly support when a major disaster affects our primary data center."

Warunee Leelatanawit
Director of Information
System Department
NSTDA