



HONG KONG, ASIA'S RESEARCH HUB, EXPANDS ITS GLOBAL REACH WITH HIGH-SPEED OPEN EXCHANGE

Summary

Company:

Joint Universities Computer Centre (JUCC)

Industry:

Education

Business Challenges:

Enable scientists at Hong Kong's public universities to easily access massive data sets and collaborate with peers at education and research institutions around the world

Technology Solution:

MX10003 5G Universal Routing Platform

Business Results:

- Facilitated global research collaboration in data-intensive fields such as high-energy physics, genomics, and public health
- Built high-density, power-efficient 100 Gbps open exchange point to connect Hong Kong universities to researchers in China, the U.S., Europe, Singapore, Japan, and elsewhere around the world

Data is changing the nature of scientific discovery. Massive volumes of data are generated, sensed, and harvested from experiments, observations, and simulations. Scientists across Hong Kong's universities are leading the way in this new digital era of research. The challenge is to enable researchers to collaborate with their peers around the world. To power the easy exchange of huge data sets, the universities turned to Juniper Networks to create an ultra-efficient, 100 Gbps open exchange point with other universities and research institutions in Asia and across the globe.

Scientific discovery, from exploring the secrets of the universe to understanding the roles genes play in disease, increasingly depends on massive volumes of data.

"Research takes place on a global setting," says Samuel Kwan, chair of the Joint Universities Computer Centre (JUCC) Steering Committee. "The driving force for the Hong Kong eXchange effort is to improve the research and education (R&E) network connectivity for local and regional higher education institutions."

A dynamic economy, academic freedom, and proximity to mainland China have nurtured a vibrant university and research community in Hong Kong. High-energy particle physicists work with their peers at CERN, the European Organization for Nuclear Research, to explore the secrets of the universe using the Large Hadron Collider. Researchers explore the pivotal role that genes play in disease, uncovering genetic links to cancer, osteoporosis, and schizophrenia. Controlling the global spread of influenza depends on understanding how viral pathogens spread. These discoveries—and many more—depend on downloading exabytes or even petabytes of data, often half a world away.

University researchers must be able to access and analyze unimaginably large amounts of data, not just within Hong Kong but also with their peers in Singapore, Japan, and China, as well as the United States, Canada, and Europe. If the data sets take hours or even days to transfer, scientific progress is delayed.

The JUCC, a consortium of eight government-funded universities in Hong Kong and eight self-funded universities and post-secondary colleges in the region, wanted to ensure the high-speed exchange of information with researchers across the world.

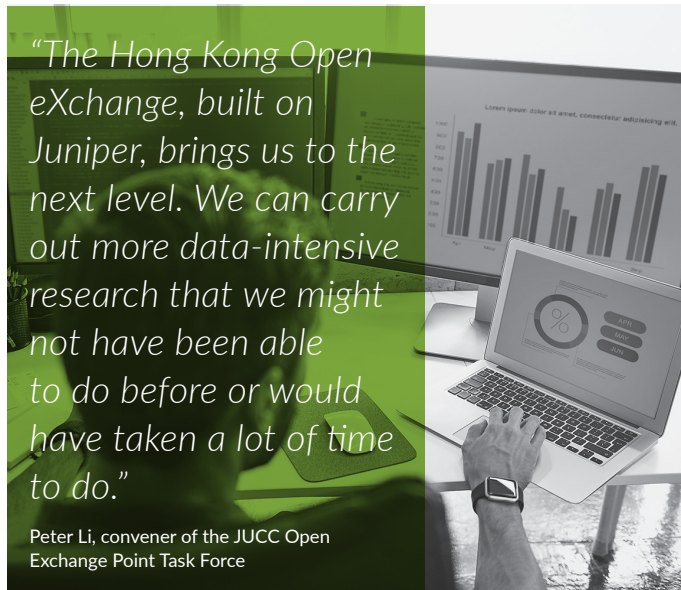
"The Juniper MX10003 router was ideal because of its compact size, density, and energy efficiency."

Peter Li, Convener of the JUCC Open Exchange Point Task Force

Global Exchange Designed for Ultra Efficiency

As one of the world's most densely populated cities, the need for efficiency in Hong Kong is paramount. It isn't just petrol and coffee that cost more—so do data centers. "In Hong Kong, land is very expensive and space is limited," says Peter Li, convener of the JUCC Open Exchange Point Task Force. With power and space at a premium, JUCC needed a small-scale, energy-efficient 100 Gbps router for the heart of its exchange.

The Hong Kong Open eXchange operates from one of the largest Tier III+ data centers in the world, a 30-story, 350,000 square foot, state-of-the-art facility. To power the exchange, JUCC chose the Juniper Networks® MX10003 5G Universal Routing Platform. "The MX10003 router was ideal because of its compact size, density, and energy efficiency," says Li.



"The Hong Kong Open eXchange, built on Juniper, brings us to the next level. We can carry out more data-intensive research that we might not have been able to do before or would have taken a lot of time to do."

Peter Li, convener of the JUCC Open Exchange Point Task Force

Juniper's innovation in the research and education sector was important, especially since JUCC was new to Juniper products. "Juniper is used by many other open exchange points, and by choosing Juniper, we can interoperate with them easily," says David Choi, chairman of JUCC Network Task Force. "It gave us confidence that other open exchange points were using Juniper."

Scientific Collaboration Around the Globe

The Hong Kong Open eXchange makes it easier for thousands of researchers working on hundreds of projects to make new discoveries faster than ever before.

One opportunity that has been unlocked by the Hong Kong Open eXchange is free access to high-performance computing resources on the other side of the world. "We recently became aware of a supercomputer in Saudi Arabia that is open to researchers around the world," says Kwan. "With a high-speed connection, researchers in Hong Kong can get access to the top supercomputers globally."

"We are in the age of big data, and computational research has proliferated in every research discipline. A high-speed R&E network is a necessity to the community. With Juniper, we can deliver high-speed connectivity very efficiently."

Samuel Kwan, Chair of the JUCC Steering Committee

The promise extends beyond scientific discovery. For example, the Hong Kong government is working with regional cities in China to form the Greater Bay Area. "We see JUCC and the Hong Kong Open eXchange playing an important role in that collaboration," Choi says. "It starts with the research and education community, but the direction is to create smart campuses on universities and smart cities. Those initiatives rely on the infrastructure we're building for the Hong Kong Open eXchange."

"We are in the age of big data, and computational research has proliferated in every research discipline," Kwan adds. "Computers help speed up the research process, and a high-speed R&E network is a necessity to the community. With the Hong Kong Open eXchange, we can deliver high-speed connectivity very efficiently."

With the Hong Kong Open eXchange, researchers in Hong Kong can continue to unlock the mysteries of the universe, improve public health, and lead the way in personalized medicine. Its researchers stay focused on their work, without a thought to the mechanics of how their data is delivered.

For More Information

To find out more about Juniper Networks products and solutions, please visit www.juniper.net.

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