IT on Wheels

Well-run systems keep technology on track at Hong Kong's MTR

If you're in a hurry in Hong Kong, here are two bits of advice: Ride the MTR, and don't discuss cybersecurity with Daniel Lai. MTR (short for Mass Transit Railway) Corporation whisks 2.5 million riders throughout Hong Kong each day with 99.9 percent on-time performance. As MTR's chief information officer, Lai is responsible for its huge, interconnected security infrastructure. He could describe his work for hours, but he sums it up this way: "We take a holistic view of security, especially information security," he says. "We believe that physical security and cybersecurity are converging."

Education plus systems

In 2004, the company formed a corporate information security committee—chaired by Lai—to develop security policy. Broad participation is essential because, as Lai says, "with one person it's difficult to address all security aspects within the organization." Led by an information security manager, a smaller information security group executes the committee's plans and responds to security incidents.

By Fred Sandsmark

Education is central to the game plan. MTR uses many channels to market security to its 6,000 end users. New employees receive information security training and sign an agreement to abide by company security policies. Every time a computer boots, information security banners pop up; users must acknowledge them before beginning work. The corporate intranet offers security information. About 200 power users in the company attend occasional three-day seminars for new security threat information. Outside experts lead the seminars, using MTR-internal examples to illustrate points, and attendees are expected to share what they learn with colleagues.

There's more to security than education; it also requires systems. Lai discusses two that MTR uses: an information classification system that puts about

Daniel Lai, Chief Information Officer, Mass Transit Railway Corporation

a million company documents into four security hierarchies (secret, confidential, restricted, or normal) with rules for each, and a two-factor, token-based authentication system for the 400 MTR employees who need secure remote access to MTR's network. Employees who need remote access get a pocket-sized electronic device that generates a numeric key. The user must input the key, along with his or her log-in and password, to gain access to systems. Checked-out laptops are also "sanitized"—checked for viruses—

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when employees return from traveling.

Lai declines to give figures on the effectiveness of MTR's security programs. Looking at numbers doesn't mean anything, he says, because the better your measurement tools, the more you're able to measure. When the company starts tracking a new threat, the number of security incidents may increase but that doesn't necessarily mean that there are more—just that more are being counted. Similarly, MTR doesn't apply a strict financial benchmark to security. "We have to look at the potential loss in revenue and corporate reputation, and the impacts if a security fraud takes place. Just looking at return on investment (ROI) would be difficult."

Right from the start

MTR's IT initiatives are scrutinized for effectiveness and financial benefit. "First, we must do the right projects," Lai says. "Secondly, we must do the projects right to ensure that our investments are well spent." A project must support MTR's strategic objectives: increasing revenue, improving customer service, and reducing costs. A project must also support the stated goals of a company division. (For example, MTR's engineering department recently expressed a desire to make better use of the 2,000 engineers who maintain its HK$100 billion [about US$13 billion] in assets. In response, the company's human resources management system was updated to include competency and skills information for each employee.) Third, a project must prove ROI or other benefits.

Once a project is underway, Lai's group monitors its progress both at project and program levels. A review, typically conducted six months after project completion, determines whether it delivered its intended benefits. The information is fed back into future developments, so the process constantly improves.

Supporting growth

The creation of MTR's Engineering Works and Traffic Information Management System (ETMS) in 2005 shows this process at its best. In cooperation with City University of Hong Kong, MTR developers created an artificial intelligence system that helps MTR's maintenance engineers work more efficiently. ETMS assigns resources and personnel with special skills to the highest-value tasks, provides real-time progress reports, and ensures compliance with government and safety rules—all jobs previously done manually. The system will pay for itself (in personnel savings and improved uptime) in three years, and MTR hopes to license the ETMS to other transit agencies worldwide, making it a potential revenue source.

Some of MTR's IT needs don't fit into a tidy project structure. Systems of small size and low importance can grow in both dimensions. Take email. Not long ago MTR employees could tolerate it going down for a few hours; now, email is business-critical and must be available always. Simultaneously, the amount of data the email system handles has grown 27 percent annually, mainly due to the ease with which documents and multimedia can be attached. Veritas NetBackup Enterprise Server, with a database agent for Microsoft Exchange Server, and Veritas Cluster Server help to meet this growth.

"In just three years' time, the data has almost doubled," Lai says. "It's a challenge to handle the volume and the mission-critical nature of the email system. Other security products include Symantec Brightmail AntiSpam, Symantec AntiVirus Enterprise Edition 10, and Symantec Network Security 7120 and 7160 intrusion protection appliances."

MTR's security and technology practices will get more exercise soon. MTR is building two rail lines in mainland China, and Lai's group will help create and manage the IT systems. It's a challenge Lai will meet head on—a fact noted by ZDNet Asia when it awarded Lai its 2006 CIO of the Year award. In bestowing the award, ZDNet Asia proclaimed, "Lai has done a great job ensuring that IT continues to support the business as MTR grows and expands beyond Hong Kong." ◾

Fred Sandsmark also writes for Silicon Valley TechWeek *and* Sunset.

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> *—ZDNet Asia*

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