Airport adopts breakthrough common-use model with dynamic digital signage driven by Wyse thin clients

Challenge: Enabling dynamic signage for the common-use environment

San José is America's tenth-largest city and the Capital of Silicon Valley, and its airport – Mineta San José International Airport (SJC) – is rapidly changing with a comprehensive modernization program that will offer a polished, high-tech face to the world that reflects the innovative character of the region and people it serves.

When completed in 2010, the $1.3 billion project will have accomplished a challenging fast-track, complex implementation that is doubling the size of the airport's terminal facilities while it has continued to operate and improve the quality of customer service during construction. It will also make SJC a forerunner in an emerging trend: a common-use infrastructure that leverages technology including Wyse thin clients for dynamic digital signage to enable different carriers to tap into the same airline gates and counters – creating efficiencies, cost-savings, and flexibility for both airlines and airport alike.

SJC is a completely self-supporting enterprise, owned and operated by the City of San José. As a public entity facing a period of serious budget challenges, SJC must operate with extreme efficiency, a requirement that is especially acute in the current economic environment where flights and passenger counts have fallen 20% over the past two years.

"Airports are increasingly looking for ways to do better with less," says Robert Swensen, airport operations and activation manager for SJC. "Traditionally, airline carriers lease and manage their own ticket counters and gates, a model that is not only expensive, but also fails to get the most use of resources."

Under the new SJC common-use business model, carriers now rent aircraft gates and ticket counters based on the time they actually use. Those that have greater usage can arrange to have "preferential use" of equipment and pay an annual fee to the airport, but the airport reserves the right to

reallocate assignments as needs change. By applying technologies from local Silicon Valley companies such as VMware to virtualize desktop and server environments, the airport has successfully used affordable, technology-based solutions that will allow it to attract and handle more business, process passengers and their baggage more efficiently and save money.

Sustainability is another important part of the modernization project. SJC's new terminal has been designed and built to LEED "green building" sustainability standards, and it features generous natural light, integral solar shading, recycled water, and an energy-efficient ventilation system.

To implement the IT infrastructure for the modernization project, SJC worked with systems integrator Air-Transport IT Services, Inc. (AirIT). The AirIT solutions installed at SJC included operational systems, passenger processing system, and property and revenue management system for the billing of SJC's airlines and tenants.

SJC is taking advantage of AirIT's Extended Airline System Environment (EASE) platform to extend these and other carrier-specific applications onto the airport's common-use operating environment. The systems integrator also developed the Flight Information Display System (FIDS), a software solution for dynamically displaying text- and video-based way-finding information such as arrivals and departures, gate information, and ticket counter displays on hundreds of flat-screen panels throughout the airport.

Dynamic digital signage is a crucial component of the common-use model. Gates and counters need to be effortlessly branded on the fly with the specific carriers' logos and related information, and travelers must be able to find arrival and departure, gate, and baggage claim information at a glance via hundreds of flat-panel displays dispersed throughout the terminals.

Dedicated PCs were initially used for the signage displays throughout the airport, but several difficulties soon emerged. The PCs were expensive to deploy across hundreds of displays and consumed substantial power and space. Aesthetically, the PCs were less than desirable because the flat-panel displays had to be mounted a substantial distance from the wall to accommodate the PCs' large form factor.

"When we had a dedicated PC behind every display, we faced unwieldy heat and power issues. The high temperatures took a heavy toll on the lifespan of our flat-panel displays, and the high power consumption was unacceptable in light of our green initiatives and rising energy costs," explains Diane Mack-Williams, IT director for SJC.

IT costs escalated as a result of the time and effort required to support traditional PCs. "We wanted to move to thin clients for centralized management to reduce the amount of time that on-site staff had to spend maintaining hardware," says Chris Keller, AirIT executive vice president and chief operating officer.

Solution: Thin computing from Wyse Technology

AirIT's search for an affordable, space-saving, low power-consumption and low-maintenance alternative ended quickly and decisively with the selection of Wyse thin clients running Wyse Device Manager (WDM) software.

Common-use technology

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For dynamic digital signage, SJC purchased an initial 180 Wyse V90 thin clients – and immediately began reaping cost benefits. Buying and deploying a PC costs on average $750 more than buying and deploying a thin client. By provisioning the first 180 thin clients instead of standard desktop computers, SJC avoided more than $112,000 in up-front expenses. SJC also reduced ongoing IT costs. Now, instead of taking several hours to deploy a new desktop device, AirIT staff can take less than an hour to install a new Wyse thin client without any operational disruptions.

"Flat panel displays have become commonplace in airports and are used in a myriad of applications and locations," says Keller. "Today, technology decisions have to be made to address both form and function, meaning technology has to allow for seamless integration within an airport's architectural design requirements, yet provide the computing power necessary to drive software applications and full motion video.

"Wyse thin clients emerged as the clear choice for AirIT when considering form factor, reliability, price/performance, power consumption, and the reputation of Wyse as a company that stands behind its products."

The SJC IT staff heartily agreed with the decision to drive dynamic signage using Wyse thin clients running the Microsoft Windows XP Embedded operating system and FIDS. "The Wyse thin clients throw off less heat, consume less energy, and dramatically reduce our IT efforts and costs – all while providing ample power to drive our displays," says Mack-Williams.

Benefit: Lower costs

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Over time, provisioning costs will decrease even more dramatically. For example, during a nine-year period, SJC will be able to eliminate two full refresh cycles per device, at a savings of $1,350 each time in hardware and staff time, resulting in potential savings of millions of dollars.

Benefit: Maximized use of IT resources

Wyse thin clients, when combined with Wyse Device Manager (WDM) software also simplify support activities. AirIT staff previously had to repair or update computers in the airport's on-site lab. Instead, staff can stay where they are and remotely re-image the thin client machine with WDM on the server using a hands-off process. Instead of spending a significant amount of staff time each week maintaining the hundreds of PCs used to drive display signage, AirIT now spends considerably less time maintaining the thin clients.

Benefit: Served airlines better while reducing costs

Overall, the common-use model has enabled SJC to avoid costs during the construction phase. Instead of building a temporary terminal to accommodate airlines while new construction was underway, the airport saved $20 million by implementing common use technology that allows airlines to share ticket lobby and gate counter resources.

As Swensen explains, "When we were creating the footprint for the new terminal, we were able to leverage the remaining gates to accommodate all of our carriers – it was a huge factor in our ability to complete construction on time and on budget, while avoiding construction of a temporary terminal."

The common-use model has not only improved service and reduced costs for airline carriers, but has also helped SJC reduce overall project costs. The modernization program actually is reducing the number of aircraft gates from 32 before the project started to 28 when completed next year, without affecting the airport's capacity to serve current and future traffic. SJC estimates that it avoided $100 million in project costs by building fewer gates because of common-use technology – an impressive statistic that helped SJC meet stringent budget requirements.

Benefit: Conserved energy to help meet environmental initiatives

Wyse thin clients are a greener solution than PCs because they don't need to draw power for spinning disks or fans. Also, with no moving parts to break, and minimal need for processing power within the device, thin clients last much longer before malfunctioning or becoming obsolete. SJC can use the same thin client for up to nine years instead of using and discarding two or three PCs during the same period. Because Wyse thin clients run cooler, SJC anticipates that its flat-panel displays will last longer as well.

Benefit: Built an airport befitting Silicon Valley

For SJC, Wyse thin clients are a key part of an overall strategy to serve airlines better and more cost-effectively, while delivering a high-tech airport that is a showcase of how local Silicon Valley companies' most advanced technologies can reinvent the way airports operate.

"The airlines have told us they are very pleased with the common-use system," says Mack-Williams. "Based on the latest local Silicon Valley technologies, including Wyse thin clients, the new common-use model drives efficiencies and return on investment that both the airport and the carriers genuinely appreciate."

Less heat – ample power

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DIANE MACK-WILLIAMS,
IT DIRECTOR,
MINETA SAN JOSÉ INTERNATIONAL AIRPORT (SJC)

Solution Architecture

Wyse Products

Clients:	180 Wyse V90 thin client devices
Management software:	Wyse Device Manager
Applications:	AirIT Flight Information Display System (FIDS)
Server:	Dell Servers running Microsoft Windows 2003 Operating System
Network:	Cisco Network

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