THINMANAGER
A ROCKWELL AUTOMATION TECHNOLOGY

LEARNING PAPERS:
Real World ThinManager

Stories about how various customers use ThinManager and ThinManager Ready thin clients to solve real world problems.

Contents

Continued on next page »

DISTRIBUTION & LOGISTICS

PROBLEM:

- Shipping company needed real-time information from 30+ remote sites.

SOLUTION:

- Deployed ThinManager at each remote site.
- Set up a "war room" with 30 thin clients.
- Connected each thin client to a remote site via WAN.
- Single operator able to t view activity of all remote sites.

A global company with distribution centers around the world was having trouble getting real-time information from the sites to the headquarters.

The company standardized on ThinManager and deployed ThinManager and terminal servers at each site, setting up a "war room" at the headquarters with a thin client for each remote location. These thin clients boot locally and then connect to a remote terminal server via the corporate WAN.

To view the real-time data for any site, a user at headquarters simply selects the correct thin client and is able to see the screens from that remote terminal server.

Continued on next page »

CHEMICAL PLANT

PROBLEM:

- Outmoded paper strip charts were a hassle and did not give instant real-time trending.

SOLUTION:

- Replaced strip charts with thin clients.
- Collected I/O in SQL server and backed up and archived.
- Archive gave operators the ability to see trending patterns in a more efficient manner.

Emission monitoring charts are critical to pollution control. Before their thin client installation this company captured this data on paper strip charts printed on machines that require oiling, inking, and paper refills.

At the end of the month the company had roughly 30 charts that were bundled and placed in a large clear sack. This sack was then stored in one of 12 bins along with the past 5 years of charts. Retrieving data required a manual search through bins, bags, charts and pages to find the correct chart.

ThinManager allows data to be written to a SQL server for storage and displayed on chart-sized monitors attached to thin clients. The thin manager screen shows an HMI that mimics the strip chart display so operators don't require any additional training. Because the system is no longer tied to paper charts operators now have a Back button to allow engineers a look at past performance.

The database is backed up monthly and burned to a CD with 5 years of history fitting on one CD spindle. Searches are now conducted with a simple SQL search.

Continued on next page »

CHEESE MANUFACTURING

PROBLEM:

- Humid environment causing frequent PC failures.

SOLUTION:

- Replaced PCs with thin clients
- Thin clients are more reliable and less sensitive to harsh environments than PCs.
- Small form factor allows thin clients to be placed in a protective panel to combat humidity.

Part of the cheese making process requires a saltwater rinse to cure newly made cheese as it passes through an extruder. The mist from the process coats the entire room with a thick condensation. Because of the requirements of the food manufacturing process every surface is hosed down each day with strong cleansers to maintain sterility. Even though bags of silica gel were stacked in the panels to try to protect the PCs from the moisture, the elements were still affecting the PCs as fans circulated air through them for cooling.

The new ThinManager Ready thin clients do not have cooling fans or moving parts which makes them less sensitive to the humid environment, and the small size of the thin clients leaves room for additional absorptive material in each panel.

Continued on next page »

CHEMICAL PROCESSING

PROBLEM:

- PCs scattered throughout a multi-acre site made routine maintenance a major hassle.

SOLUTION:

- ThinManager Ready thin clients are managed in the central control room.
- Thin clients no longer need to be visited for maintenance.

A chemical plant had PCs all over a huge refinery, including some located in towers that were up 10 flights of stairs. Maintaining and patching the PCs took hours of walking and climbing.

ThinManager and terminal servers were deployed, allowing the PCs to be replaced with ThinManager Ready thin clients.

Now all of the maintenance and management takes place in the central computer room. Units on the towers can be shadowed to see what is displayed without having to leave the main control room.

Continued on next page »

POWER GENERATION

PROBLEM:

- Critical remote auxiliary gas turbine is rarely used but must be ready immediately when demand arises.

SOLUTION:

- Turbine area now controlled from main control room.
- Redundancy and Instant Failover make sure it's always ready to be put into action.

A coal-fired power plant added a gas turbine generator to help meet power demand during peak usage periods.

The gas turbine generator has to be ready at all times but is used infrequently enough that it is unmanned.

The company decided to deploy ThinManager and ThinManager Ready thin clients, taking advantage of ThinManager's failover and redundancy making sure that the system is always ready to go. When needed they can use ThinManager's shadowing and remote management to run the generator from the central control room.

Continued on next page »

FOOD PRODUCTION

PROBLEM:

- Night-shift worker installed an application with a virus on a PC.
- The infected PC controlled the HVAC system and could not close vents for fumigation.
- The plant had to stop production for 4 days to allow re-scheduling of the required treatment.

SOLUTION:

- Thin clients prevent access to operating system.

Fumigation of a large food production site takes careful planning and coordination to guarantee safety and prevent contamination. Fumigations are scheduled during employee holidays to prevent production interruption.

At the start of one such fumigation the company discovered that the HVAC computer was not correctly controlling the plant's ventilation system. The computer had been compromised by the installation of a video game that brought in a virus. The PC had to be rebuilt, and by the time it was ready the window of opportunity had passed and the fumigation had to be cancelled.

Rescheduling the fumigation resulted in an unplanned four day shut down - workers who had to use vacation or miss four days of pay were not amused.

ThinManager Ready thin clients prevent unauthorized users from loading software and can even limit users to just a few programs saving a major security headache.

Continued on next page »

MANUFACTURING IN A DUSTY ENVIRONMENT

PROBLEM:

- As many as 3 PCs failing each week requiring IT and maintenance support.
- Up to 6 hours of lost production time for each failure.

SOLUTION:

- No moving parts mean that ThinManager Ready thin clients are more reliable.
- Failures can be replaced by operator in 15 minutes or less.

A manufacturing plant had PCs in a dusty environment. The fans sucked in dust and debris causing overheating and failure after about a year. Since the company had 200 PCs, several had to be replaced each week.

Replacement required the services of a computer technician to build and setup the computer, and then the services of a floor electrician to swap the hardware and connect the cables – a process that took several hours at best.

Because ThinManager Ready thin clients are configured in a central location and do not rely on local application storage, any clients that do need to be replaced can be up and running much faster. The entire replacement takes an electrician about 15 minutes.

Continued on next page »

WAREHOUSE

PROBLEM:

- Paper oriented dispatch system forced operators to central area for each new order.

SOLUTION:

- Wireless thin clients mounted on forklifts allowed operators to receive instructions "on the go".
- Scanners on serial port allowed verification using barcodes on delivered products.

A manufacturer used a primitive paper system for dispatching the forklifts to deliver materials used in the process. After each run the forklifts would need to return to the dispatch office for the next package of paperwork.

They wanted a modern computerized system but had trouble with hard drives and the vibrations generated by the forklift.

They deployed ThinManager Ready thin clients with touch screens connected to a wireless access point on the roll cage. This let the dispatcher send delivery orders through an interface, allowing the forklifts to run continuously.
Scanners were attached to the serial port of the client so that the operator could scan the bar code of the material to provide a time stamp and to verify the accuracy of the task.

ThinManager Ready thin clients provided another benefit. The wireless reception was good in the warehouse and in the delivery zones, but the runways had intermittent reception. If the thin client ran through a zone with poor reception, the thin client would disconnect and keep retrying. Once it re-entered a good zone it would reconnect to the terminal server and resume the previous session.

Continued on next page »

TRANSPORTATION

PROBLEM:

- IT and production are in separate facilities.
- IT was losing valuable resources while traveling to other sites for maintenance.

SOLUTION:

- ThinManager Remote Administration allows IT to control and manage a remote site from one location.

Many companies have one IT department that covers a number of locations requiring the IT staff to make regular visits to the other plants for maintenance and repair.

Using standard ThinManager utilities this same staff has access to all remote sites allowing the IT staff to manage them from a central location. They can even shadow sessions and view process and load statistics.

Continued on next page »

MINING 1

PROBLEM:

- User interface needed underground in dusty, harsh environment.

SOLUTION:

- Servers installed at ground-level in controlled rooms.
- Thin clients deployed in the mine.
- IT maintains and monitors from the ground-level.

One of the shafts in this mine extends over a mile into the earth into an extremely dusty environment that is particularly hostile to computers. A PC failure meant an hour delay while a replacement is brought down from the surface. The only alternative was to setup a computer shop manned by IT underground. Neither alternative was acceptable.

ThinManager Ready thin clients have no moving parts so the switch to thin clients decreased the likelihood of failure. Any client that does fail can be replaced from supplies kept underground in minutes without any complicated configuration.

The terminal servers are kept above ground in a clean secure computer room and can be maintained by a surface based IT department. An added benefit is that users above-ground can shadow the units in the mine to see what is happening without having to travel a mile below the surface.

Continued on next page »

MINING 2

PROBLEM:

- Fine dust causing hard drive failures within 9-12 months.
- Preventative maintenance system established to replace each drive every 6 months.

SOLUTION:

- Servers with hard drives installed in a clean environment.
- ThinManager Ready thin clients operate without a hard drive and sensitive moving parts and eliminating failures.

A mining company uses a very fine dust that works its way into everything, including hard drives. This dust would inevitably work its way into PC hard drives causing a failure every nine to twelve months. To stay ahead of the failures they set up a preventative maintenance program that ghosted and replaced all the PC hard drives every six months.

By switching to ThinManager Ready thin clients they were able to move the computer processing to terminal servers in clean, protected computer rooms. The ThinManager Ready thin clients don't have the intrinsic failure risk because they lack hard drives and other moving parts. The company has now been able to run almost five years with only a single thin client failure.

Continued on next page »

GLASS COATING

PROBLEM:

- PCs constantly failed due to electrical noise on communication lines.

SOLUTION:

- I/O server and Terminal Servers (and inter-processed communication) relocated into controlled environment.
- Reduced bandwidth requirements and eliminating failures.

The PCs used on the floor of a glass coating factory kept locking up and required frequent reboots. While updating to the latest computer model each year kept them ahead of increasing manufacturing demands it did not solve the reliability problem.

After the company switched to ThinManager they discovered that the network architecture inherent in the thin client model ended system lockups completely, and the improved performance and reliability have allowed them to now run over six years without needing to upgrade or replace the ThinManager Ready thin clients.

Continued on next page »

MEDICAL EQUIPMENT MANUFACTURING

PROBLEM:

- IT maintaining and updating 100+ PCs on a weekly basis.

SOLUTION:

- Deployed thin clients and ThinManager's WinTMC to existing PCs.
- IT can now manage and update the servers that deliver the application.

The IT department of a medical company had to patch and update over 100 PCs, usually every week, to deliver the latest version of Microsoft Office.

They switched to ThinManager and were able to move most of the users to ThinManager Ready thin clients. This allowed them to support and maintain two Office Suite terminal servers instead of 60 PCs.

Some users still required the devoted horsepower of a PC to run development applications like AutoCAD, Visual Studio, and HMI development software, but these users are still able to run the centralized Office applications using ThinManager's WinTMC software.

Continued on next page »

MULTIPLE SITES

PROBLEM:

- Switchover to thin clients left one branch with new PCs.
- Other branches deployed ThinManager Ready thin clients.

SOLUTION:

- Duplicate success of thin clients to branch with ThinManager's WinTMC to protect PC investment.

A worldwide manufacturing company started to standardize on ThinManager and installed thin clients at four of their locations.

Another location had just deployed PCs throughout their plant, but once they saw how well the ThinManager Ready thin clients worked and how much money it saved, they wanted to switch to ThinManager.

To protect their investment in the new computer hardware, they deployed WinTMC on their new PCs and still enjoy the management and maintenance advantages from using ThinManager.

Continued on next page »

VIBRATION-PRONE MANUFACTURING

PROBLEM:

- Vibration transferred from heavy machinery causes hard drive failure.

SOLUTION:

- Solid-state ThinManager Ready thin clients operate without a hard drive and sensitive moving parts and eliminating failures.

A manufacturer tried to protect their PCs by installing them in enclosed floor-mounted panels. The power was supplied through conduit that was hung from the factory superstructure. Vibration from the heavy presses and other equipment shook the framework and the vibration passed through the conduit into the cabinets. The PCs were exposed to a steady shake, causing hard drive skips and data loss.

ThinManager Ready thin clients are free from hard drives and other moving parts that are sensitive to vibration. Replacing the PCs with thin clients greatly increased reliability due to the rugged makeup of the true industrial thin clients.

Continued on next page »