



Lifetime Products – Living on the Leading Edge of IT



Lifetime Products, a technology-driven manufacturer of plastic and metal consumer goods, recently expanded its manufacturing operations into China and recognized the need to make quicker and more informed business decisions on a global basis. Lifetime's managers are frequently away from their desks: meeting with customers, inspecting global operations, and developing new products. To improve the speed and quality of decisions and to increase the productivity of workers wherever they are, Lifetime Products deployed Microsoft® Office Professional Edition 2003, Microsoft Windows® SharePoint® Services, and Microsoft Windows Mobile®-based devices. Since the deployment of the mobile solution, executives and managers have increased their productivity by 250 hours annually per employee. Business decisions are also made faster, saving US\$400,000 per year.

Quick Facts

Customer Name: Lifetime Products

Industry: Durable Consumer Goods

Size: 1,700

Country: United States

Website: www.lifetime.com

Lifetime Products Case Studies:

[Read](#) Manufacturing Executives Improve Speed of Decision Making, Saving \$400,000 Annually

[Read](#) Service Pack Increases Mobile Messaging Security, Productivity for Lifetime Products

[Read](#) Manufacturer Chooses Mobile Solution, Increases Worker Productivity by 40 Percent

Why go behind the case study? Case studies are beneficial for technical decision makers because they can see a real example of a business problem being solved through the application of Microsoft technology. The story behind the scenes, however, provides detail into the decision making processes and IT best practices that ultimately led to the resolution of the business problem through the application of technology. Join us as we go Behind the Case Study at Lifetime Products.

Software and Services

- Microsoft Exchange Server 2003
- Microsoft Office 2003
- Microsoft Windows Server 2003 Enterprise Edition
- Microsoft Windows SharePoint Services



Lifetime Products' strategic decision to standardize on the Windows® platform and implement Terminal Services® helped reduce IT costs and secure IP. Senior Technical Manager Jared Sahleen exposes the business and technical challenges that Lifetime Products addressed with Windows Server® 2003 Terminal Services and details the company's current evaluation of Windows Server® 2008 Terminal Services. Jared also explains his preference for Windows and Microsoft® software instead of open-source software and vendors.

"We have to be efficient because we are so lean," explains Jared, "not only on the IT side but from the perspective of the company as a whole. And because we are in such a competitive market, we have to do things right all the way down the line."

Terminal Services Primer

Terminal Services is a key component in Lifetime's infrastructure. With Terminal Services, the user has a desktop or laptop computer, but this isn't where their applications are installed, and it isn't where their data is saved. Their computer runs a single application called a Remote Desktop Protocol (RDP) client. With the RDP client, the user connects to a server. Their desktop, applications, files, and folders live on the server. This mechanism effectively gives every user a desktop with the reliability and availability of a data center server. And because of Terminal Services, IT can manage these remote users, performing backups, patching, and monitoring as though all were residing at a single facility.

Connecting to a remote desktop isn't unique to the Windows platform. Linux and UNIX also let users connect to a remote desktop hosted on a server. Some Linux vendors even recommend that you look at your user base and segment it based

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on need, putting some users on "free" Linux platform with Firefox and OpenOffice, and other users on a full Windows® operating system. But Jared has zero interest in this blended approach, saying, "It's more expensive to have variance in platforms. Management becomes more complex. Windows and Linux have to be managed differently and patched differently, using different tools. We can't deal with incompatibilities and user complaints just so we can go cheap and stick some people on OpenOffice."

Maximum User Experience

Without Terminal Services, organizations are faced with buying full desktops for many users. Users view this as "their machine," with "their data" on "their hard drive." At the same time, users expect IT to keep their machine running well. They expect IT to back up their data no matter where they save it to, and bail them out if they somehow mis-configure the machine or its installed applications. Users' machines need to be provisioned and deployed. They can be infected with viruses or otherwise disabled. Data can be lost during hardware failures.

These challenges all represent time and cost for IT, and dissatisfaction for users. The typical IT response is to standardize and "lock down" the desktop, to which the users often respond by circumventing IT in the name of "getting their jobs done." Jared understands this, declaring, "If users can't get their jobs done, what's the point of the IT business? I know that I'm 100% a service business. If I don't provide good service, I'm just as easy to replace as anyone else."

Getting User Buy-In

Lifetime's IT department recognized that part of "good service" was getting the company's desktop users to buy into the idea of thin clients and a Terminal Services architecture. As Jared explains, "The biggest seller for Terminal Services really comes down to uptime and availability. When those users came in, they could always work." While you can't ever expect users to gush over their IT department, you do have to respect the fact that 60 to 70 percent of Lifetime Products' employees have switched over to Terminal Services and thin clients.

Users quickly realized that they're working in an environment that's

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highly available, secure, and redundant. Their ability to work was never based on the reliability of their hard drive, memory, or other hardware. They're using replaceable hardware, and even a catastrophic failure is solved in minutes by simply swapping one thin client out with another.

One Throat to Choke

The focus on reliability and availability in Lifetime Products' environment would be difficult to overstate, and when there's a problem, the company needs a quick resolution. Jared's experience with other vendors and Microsoft has led him to believe that Microsoft consistently provides rapid problem resolution, where some other vendors may deliver only finger pointing, "We have a vendor that has built its product on top of Apache, Oracle, and Java. It's a hodge-podge of every open-source project the company could find. With Java specifically, we run into problems where the vendor says, 'Oh, well, that's not a problem with our code, that's a problem because there's a bug in the version of Java that you're running. You really need to run this other version of Java.' But rolling the whole environment forward to a different version of Java would create a whole different problem. We push back and say, 'We're within the guidelines of what you say you support, so you have to fix it.' We spend a lot of time staying within the vendor's support matrix; otherwise support staff can just throw up their hands and say, 'It's a bug in Java,' and we'd be stuck having to move everything forward." For reasons like this, Lifetime prefers to buy from Microsoft, because Microsoft is on the hook to solve any problem, anywhere in the stack.

Minimal Staff

Lifetime Products' IT department provides services without a high head-count. "The IT organization is 21 people, including the CIO," explains Jared, "and we're supporting 1700 users." The organization has a number of satellite US offices, and over the last year and a half, the organization has expanded into China and Mexico as well.

Out of the people in IT, most are dedicated to building Web sites, deployment, and similar roles. Only three people are tasked with managing all the servers, clients, and networks.

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In the end, Jared says Terminal Services made sense because, "Our primary justification for going to Terminal Services is to reduce the total of cost of ownership. We can put a thin client out in an environment that we don't control. We control the user's desktop inside the server room. If there's a problem with the thin client, you don't really have to spend time troubleshooting it. You just send out a replacement."

Building it Out

With a majority of users sold on the benefits of hosted desktops, the trick is keeping everything running well and moving forward. "The biggest problem with Terminal Services comes down to the fact that you're on a shared piece of hardware," says Jared. Lifetime Services has used Terminal Services extensively, and has found that one server can host about 40 simultaneous users. To keep users satisfied, it's important to make adequate hardware a priority. As Jared says, "That's the most legitimate concern. If your infrastructure isn't capable enough to handle those highs and lows without noticeably impacting the users, then that's when they're going to start having problems and that's when we see a lot of people trying to defect off the thin client back to their thick client."

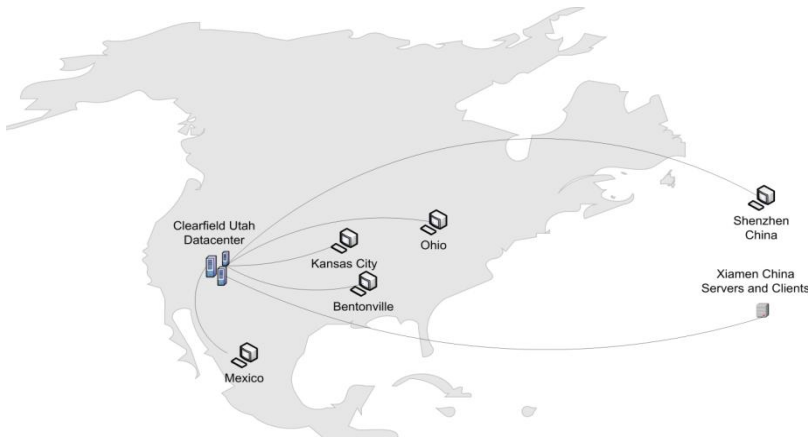
When building out a Terminal Services environment, Lifetime Products found that its biggest concerns were processor and memory. When buying machines, the company buys the fastest processor available and 6GB of memory. With this configuration, neither memory nor processing is the bottleneck, and as users are added, both reach their limit at about the same time.

Lifetime Products is a global company, with locations in Ohio, Kansas, Utah, Arkansas, Mexico, and China. The corporate datacenter is in Clearfield, Utah, and there are a few servers in Xiamen, China, to support the "thick client" users. These servers include a domain controller that provides authentication, DNS, DHCP, and WINS; an Exchange server for mailbox, hub transport, and client access; and a file and print server for printing, user profile storage, and DFS shares. With the exception of China, there are no servers in any other remote locations. Instead, all other remote users run thin clients.

Figure 1: Lifetime Products Geographic Locations

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It may seem odd to send the pixels for desktops half-way around the world, but the advantages are substantial. Data does not need to be replicated and synchronized with remote sites. Sites don't need domain controllers to provide a quick login experience. Keeping all the data in the corporate datacenter greatly increases security and protects intellectual property, as Jared explains: "I don't have to worry about BitLocker™. I don't have to worry about encrypting drives. I don't have to worry about any of that because data never exists out there."

Although it seems like sending Terminal Services display information to remote thin clients would use significant bandwidth, Jared's analysis shows, "When we first brought up China, we calculated that we could run about 100-150 users on RDP and not saturate our T1."

Remote users actually see significantly better performance with thin clients than they would with thick ones, because the users' desktops are running right inside the data center. The desktop is connected to the other data-center resources with high speed networking, so the users' desktops can quickly communicate with mail, database, and file servers. With traditional thick clients, users would be moving large amounts of data between their location and the data center over lower-throughput WAN connections.

Lifetime Products' thin clients are very thin. Historically, the typical machine has been a Windows® CE- based Hewlett Packard Evo T20 Thin Client. These machines have only a 300MHz processor, and 64-96MB of memory. According to Jared, "This model is about six or seven years old and still runs like a champ." The clients are

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disk-less, and they don't require security patching. They require so little processing power and memory because they aren't running any applications. They only need to render pixels. "We configure them so that the users are presented with a button on their screen that says, "Press this button to connect." They press it and they're connected to the Terminal Server farm, which then presents them with a login screen. They log in, and their remote desktop appears."

Making Peace with Road Warriors

Every organization has a percentage of users who are mobile, and the industry trend is to un-tether users from their desks. There are productivity benefits in letting users roam the corridors with laptops, even if they spend few work hours outside of the building. For users who are on the road, laptops are essential. Outfitting a workforce with laptops, however, returns users to a "my machine" mentality, and eliminates the advantages of hosted desktops.

Laptops are also a common vector that viruses use to infiltrate organizations, as well as being a common way for sensitive corporate data to intentionally or inadvertently leak out. Relating to the push for more laptops, Jared recounts a story that's all too familiar to many IT organizations. "We went through a phase about three years ago when—like everybody else—we had lots of laptops out there. All the salespeople had laptops; all the execs had laptops. Then the Nachi virus came out. We sent a notice out to all our users saying, 'You must not connect to the network until you come see us! Let us check your machine before you plug it in!' We had one user who didn't listen. He plugged his laptop in, booted it up, and we got Nachi. It took us 36-48 hours to eliminate it, and caused us to do a full rebuild on about 100 machines."

For years, the IT department had been warning about the risks associated with laptops, and it now had upper management's attention. The solution was to deploy what they call "blurry laptops." These laptops are currently loaded with Windows XP, anti-virus software, Microsoft Office, Adobe Acrobat Reader, and other basic productivity applications. The user has full administrative rights on the machine, and can do anything with it he or she chooses.

The key is that the machine is not part of the domain, and it is

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never connected directly to the corporate network. "All of our mobile users are Terminal Services users." Jared explains. When mobile users have network connectivity, they log in to their hosted desktop, just like everyone else. To ensure that network connectivity is available as much as possible, all laptops are equipped with Wi-Fi and EV-DO. When users are disconnected, they can work on documents from outside of their Terminal Services environment.

Their primary way of getting data into and out of their hosted desktop is the low-tech route of users emailing it to themselves. This ensures that data coming back from the laptop goes through corporate virus scanning. For moving larger amounts of data, the IT department facilitates the transfer, again ensuring that it's properly scanned before being hosted on the corporate network, and applying rights management to outgoing documents.

There is a price users pay for full freedom and control over their laptop. Because it's uncontrolled by IT, the only service that IT provides is replacement or re-imaging.

Staying Ahead of the Curve

Most organizations wait until software is fully released before beginning to evaluate it, but Lifetime Products keeps its IT right on the leading edge. Lifetime began its evaluation of Windows Server 2008 Terminal Services before the product released, and currently plans on a full Windows Server 2008 Terminal Services deployment. To ensure that the rollout goes smoothly, Lifetime Products will put Terminal Services on two machines, separate from the existing Terminal Services farm. Somewhere between 20 and 50 users will form a pilot group that will use the new Terminal Services servers.

Jared is looking for users who will stress the infrastructure. Based on knowledge of the workloads, the accounting department is a prime target for Terminal Services. People in this department tend to be the power users in the organization, and they do processor intensive operations in Excel. Executives are also used to test new technology. "Those are the ones who are going to be doing the remote access pieces," Jared explains.

Support vs. Source Code

"Whenever we participate in a Microsoft RDP [Rapid Deployment Program], we always bring in MCS [Microsoft Consulting Services]."

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Open-source users are familiar with evaluating "experimental builds" of software. Open-source projects provide access to the source and encourage users to log, and even fix, the bugs that they find.

Jared felt safe evaluating pre-released Windows Server 2008 for a different reason. "Whenever we participate in a Microsoft RDP [Rapid Deployment Program], we always bring in MCS [Microsoft Consulting Services]." To Jared, this level of vendor support is critical; access to the source code is not. As Jared puts it, "The source isn't valuable to me. What's valuable is being able to call premier support and say, 'I need this fixed now.' If need be, I'll have an engineer on site within maybe 24 hours. That's part of our beef with Apache at this point. If I have a problem with Apache, who do I deal with? If I go to the software vendor who built on top of Apache, the bug isn't in something that the vendor wrote, so its staff doesn't know what to do to fix it. They're not paid to develop Apache; they're paid to develop their code. So, those vendors never want to dedicate resources to fix Apache; they want to dedicate resources to developing the new version of their product."

Conclusions

Lifetime Products long ago bet on Terminal Services as a way to cut costs and provide the best experience for local and remote users. The company has succeeded in a global deployment of thin clients, but it is not sitting still. It is finding compelling features in Windows Server 2008 Terminal Services and moving forward with a leading-edge implementation. While some datacenters contain a mix of Microsoft and Linux solutions, Lifetime Products believes that standardization, and in particular, standardization on Microsoft, is a critical factor in reducing TCO. In Jared's words, "I believe at this point if we were a Linux shop we would not be able to do what we are currently doing with Microsoft and Terminal Services. Our cost of ownership would be greatly increased." The fact that the company is providing the functionality and infrastructure needed by thousands of connected and disconnected users, in variety of locations, with minimal IT staff, makes it hard to argue with the results. Terminal Services is a key component in Lifetime's infrastructure.

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About Jared Sahleen

Jared Sahleen began his career at Lifetime as a draftsman in 1993. In 1995, he moved up into the position of Product Designer, specializing in the creation of parts for residential basketball systems. He moved into the Information technology department in 2001 where he became a Senior Network Administrator. He is currently the Senior Technology Manager where he is responsible for management of the technical IT team, as well as researching, recommending and implementing new IT technologies that address Lifetime's many business needs.

For More Information

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