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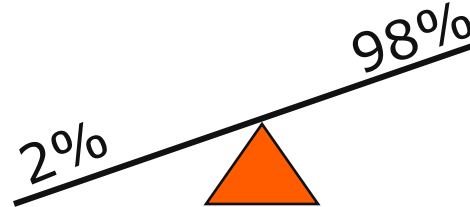


2008 Intel International
Science and Engineering Fair

Trends and Issues

The Economy & doing more with less!

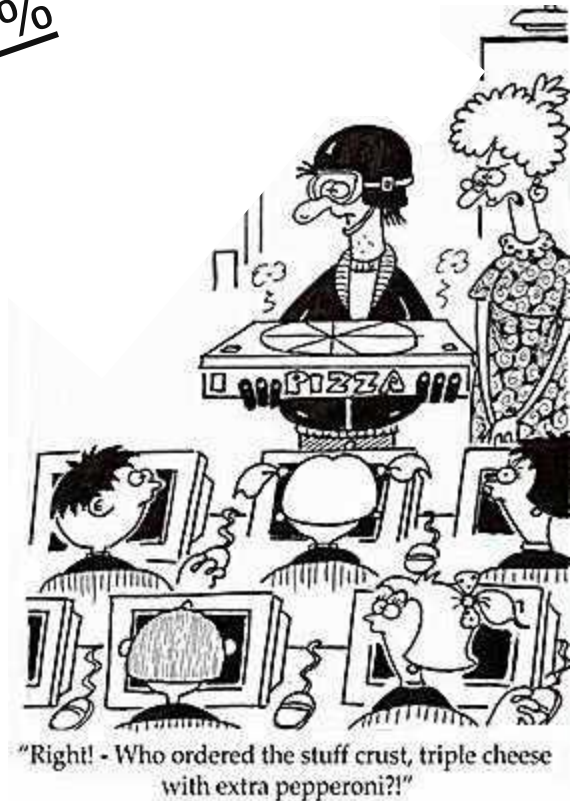
Client Based Virtualization



Energy & the Environment



Hardware enabled Management

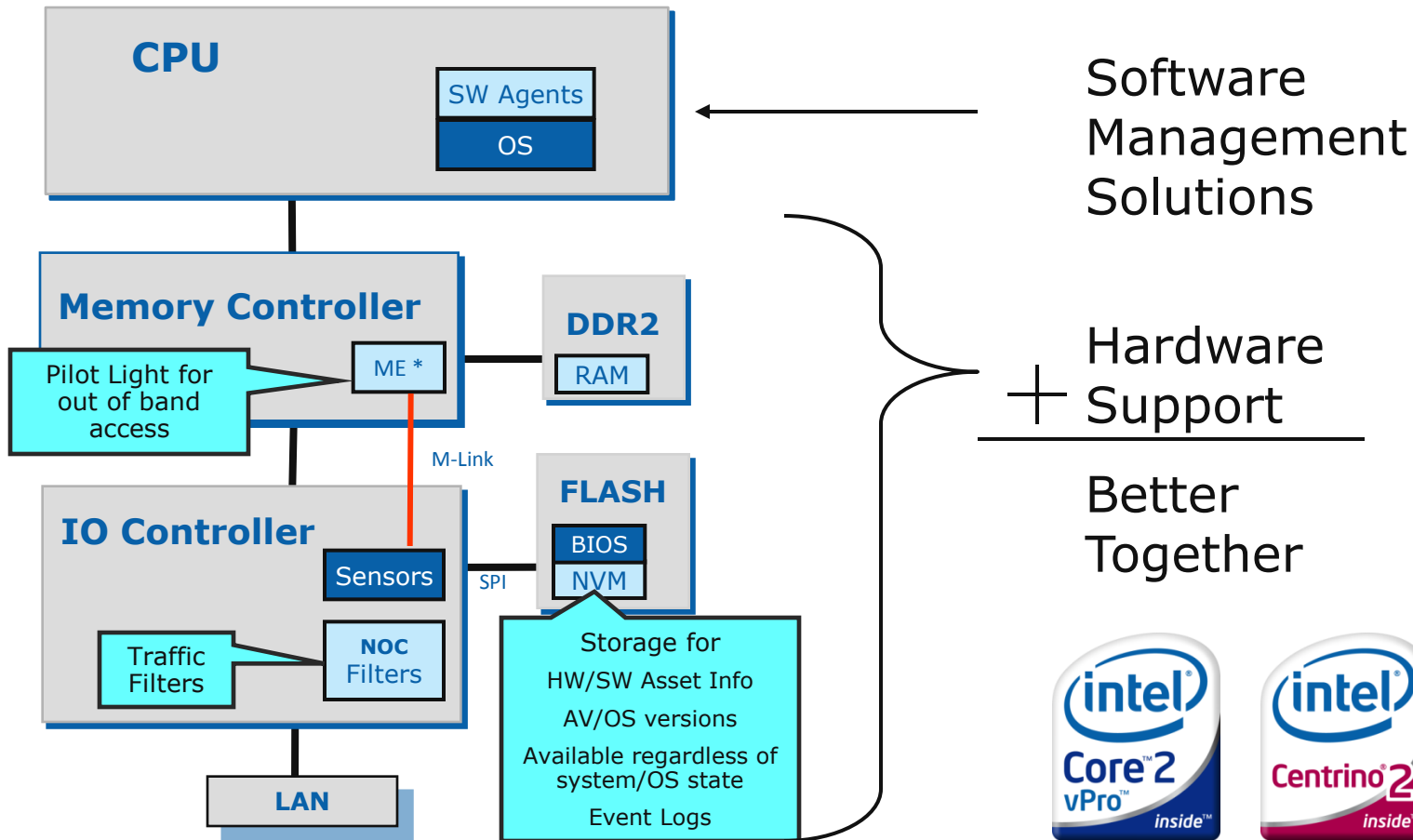


A brief architecture overview...

A Brief Architecture Overview

Hardware Building Blocks

PC Architecture

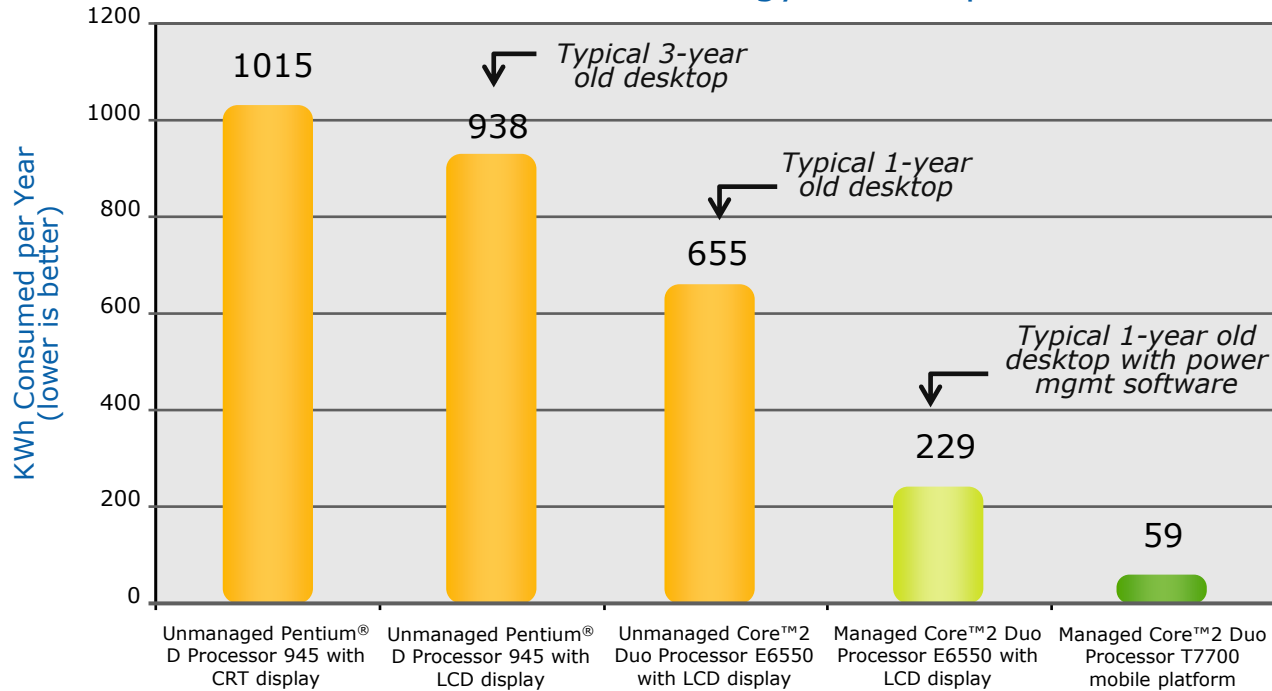


Why should I care?

Reduce PC Energy Use



Estimated Annual Energy Consumption



Reducing Energy Use and Cost

Calgary Health Region: 16k PCs

~ 2.7M kWh saved/4 years. Projected cost savings \$276k.

Cleveland Clinic: 19k PCs

Power savings 66% over 4 years.

State of Indiana:

Projected savings of \$1,4M over 4 years

Patching

Problem

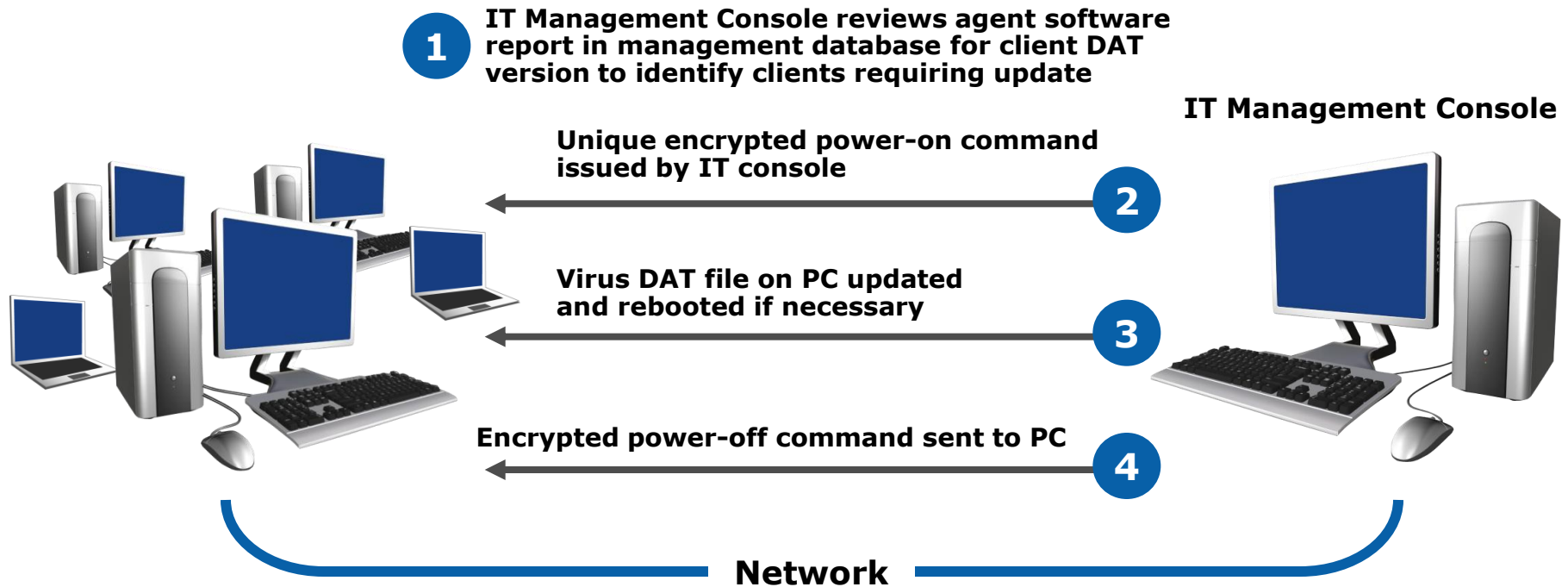
- Patching is a race against time
- Time from discover of a vulnerability to attacks that exploit a known vulnerability has shrunk from weeks to days to hours

Current Situation

- Existing solutions like Wake on LAN offer little assurance that PCs are really up to date
- Achieving saturation can often require multiple attempts and manual intervention leaving unprotected PCs exposed to threats.

Achieve Patch Saturation More Quickly

Push security updates to PCs even if they are powered off



Deploy Patches at Night and on weekends
Reduce the time required to achieve saturation

Security Benefits

University of Plymouth

Patching success rate increases from 80 to 90%

Telkomsel: 100 + locations

Patch 42% faster - Deskside visits reduced by 92%

Calgary Health Region

98% patch saturation in four hours.

Compliance and Outbreak Containment

Problem

- Students inadvertently download viruses disabling AV agents and infecting other machines
- Students inadvertently disable/delete software based AV agents Virus infected systems remain on network unless physically disconnected

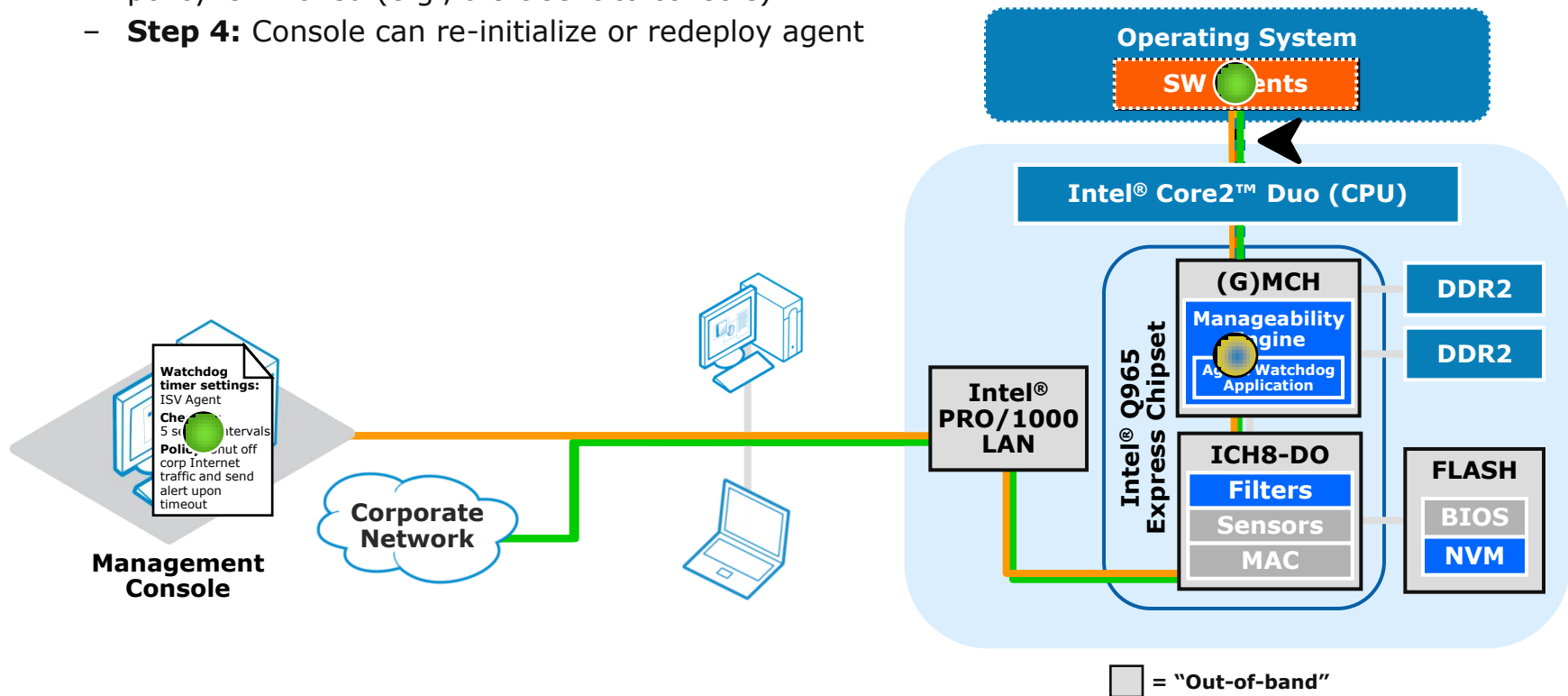
Current Solutions

- “In-band” tools for verifying virus protection SW
 - Can be defeated (e.g., user removal of in-band agents)
- Physically must disconnect infected system from network or shut down port at the switch to limit virus spread
 - Infected system can move to new port if switch port gets shut down

Manage compliance more closely

- Solution

- **Step 1:** Management Console registers with Intel® AMT for time-out alerts and sets policy for its critical agents
- **Step 2:** Agents check in with Intel® AMT at preset time interval
- **Step 3:** If an agent misses a check-in, the preset policy is invoked (e.g., alert sent to console)
- **Step 4:** Console can re-initialize or redeploy agent

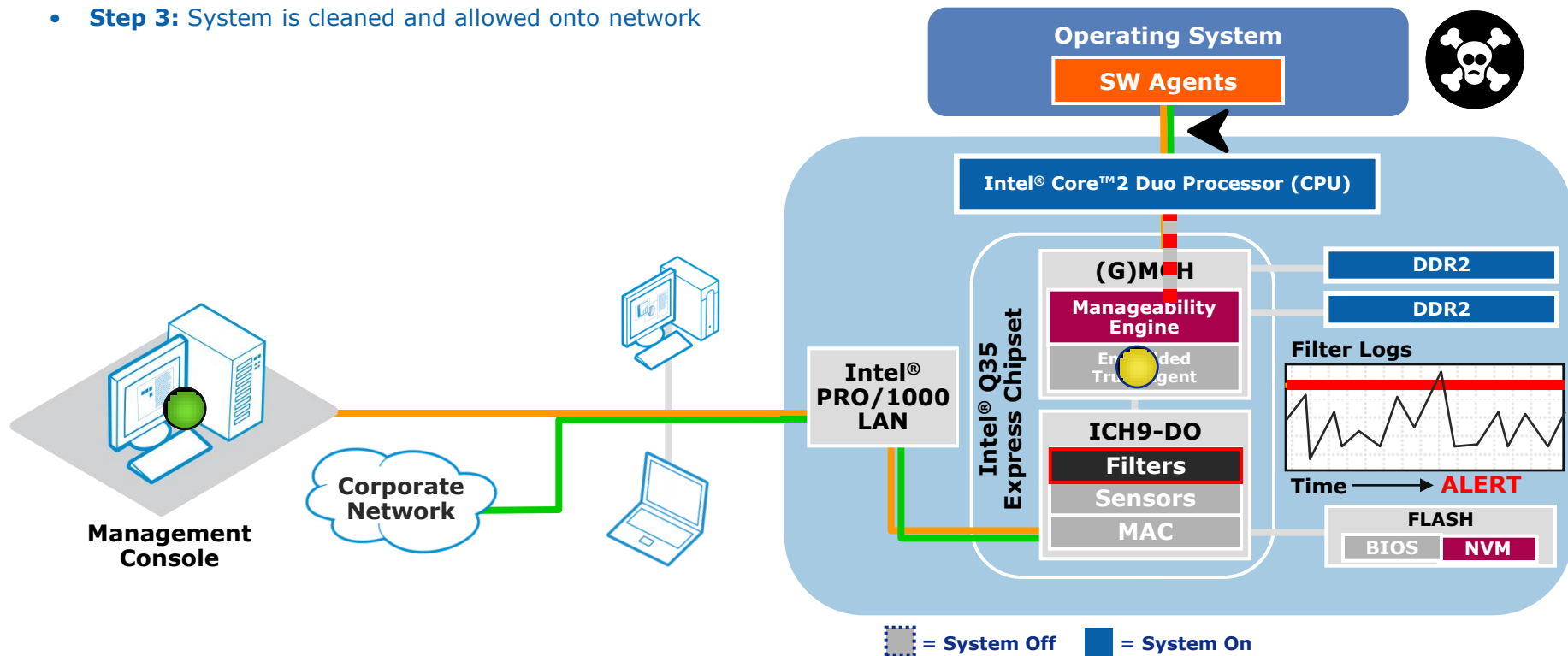


Contain Virus Outbreaks

Traffic and time base filtering

Solution

- **Step 1:** Management console sets filters thresholds (time window & # IP connections)
- **Step 2:** Client gets infected and begins worm propagation;
 - A. Filter thresholds are tripped and network connectivity is disabled at client;
 - B. An alert is sent to management console
- **Step 3:** System is cleaned and allowed onto network



A bit more about being Green...

Reduce CO₂ from 'truck rolls'

And save time too...



Resolve More Problems Remotely

For remote locations, deskside visits often = a "truck roll"

Value Space

420 franchisees

Software related visits
virtually eliminated

Hardware visits cut 50%

Cleveland Clinic

19Ku PCs

Reimaging visits drop to
near zero by year four

Telkomsel

Cellular Operator 100's
of locations

Visits for patching
reduced by 92%

State of Indiana Results

- Travel for hardware and software related issues reduced by 80%.
- Projected reduction of **428 tons of CO₂ from tail pipe emissions** over 4 years

Management Benefits

Cleveland Clinic

- Yearly asset inventory time cut by 50%.
- Reimaging visits drop to near zero by year four.

Calgary Health Region

- Reimaging time reduced from 90 minutes to 5.
- Save of \$200k/year with improved remote remediation.

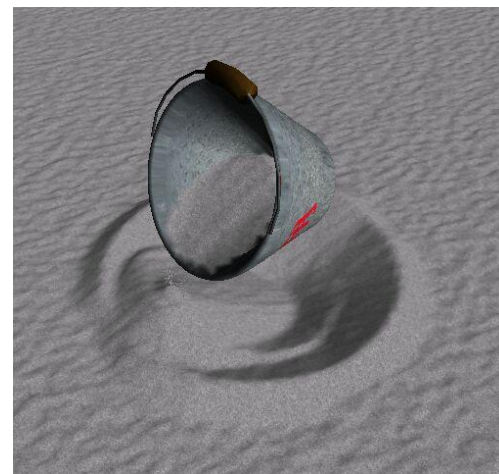
Value Space: iCafe with 420 franchisees

- Software related site visits virtually eliminated.
 - Hardware related site visits reduced by 50%.
- Help desk savings projected at \$1M over 5 years.

An opportunity for virtualization...

Virtual Sandboxes

- Consider client virtualization as a tool for student work spaces “virtual container”
- Ideal for multiple users on a single machine
- The virtual container retains the operating system, applications, software, and user configurations to act “as if” it were the only software-based ‘platform’ on the physical machine.
- Production image on the server remains intact launched “new” every time.
- Data



In Closing

Consider the potential benefits from hardware enabled management and security solutions

Keep your eye on client virtualization as a tool to for multi-user environments
(more on that later)

Thank you for your role in helping to prepare our children for the opportunities and challenges of tomorrow