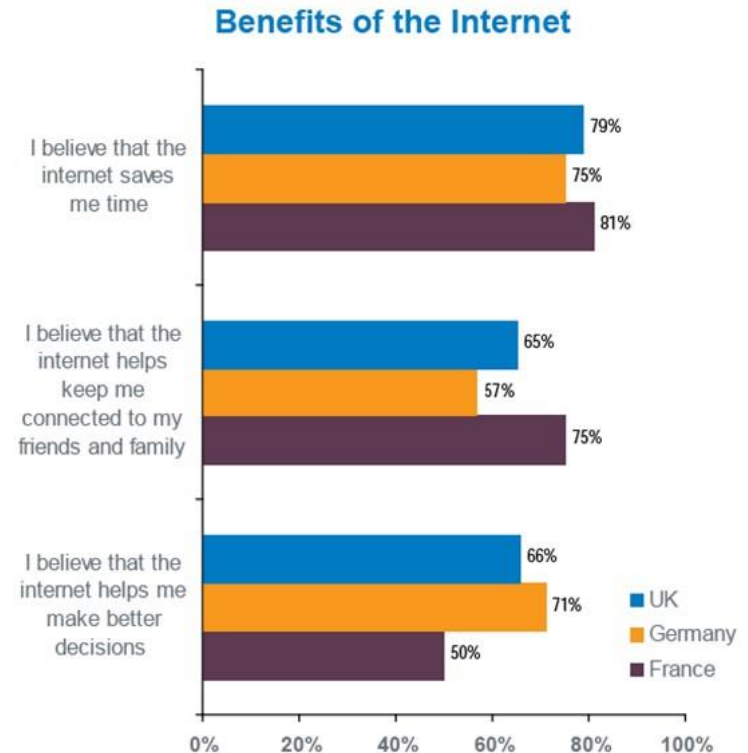
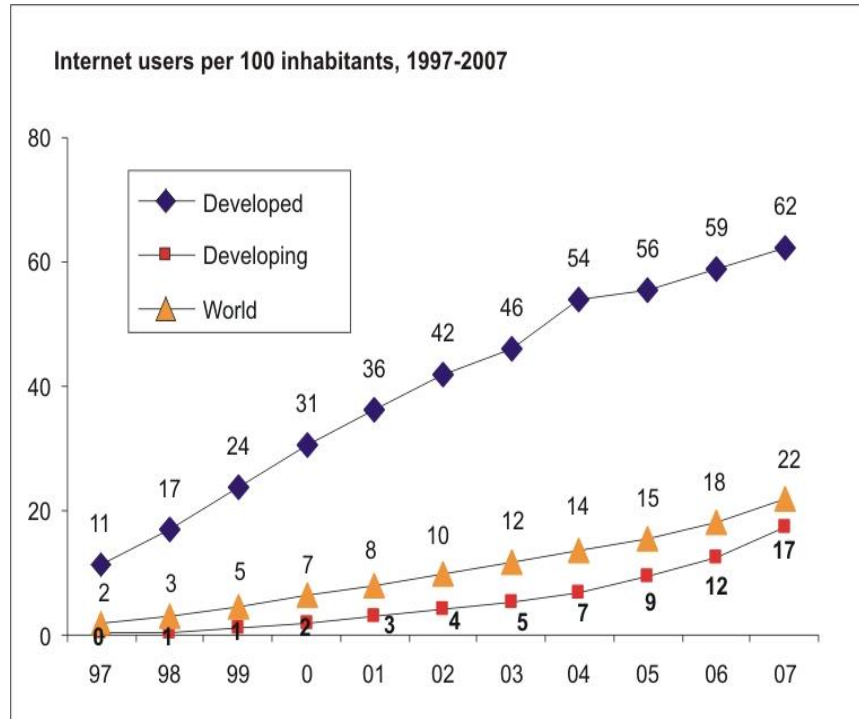


The daily miracle of Internet Connectivity



When DC professionals collaborate....

Value Is Created



➤ **Note:** All charts courtesy of Fleishman-Hillard and Harris Interactive, and ITU

➤ **About the research:** Fleishman-Hillard and Harris Interactive interviewed 4,921 internet users in the UK, Germany and France between December 2007 and January 2008. The data was quota sampled and then weighted using a bias correction method called Propensity Scoring to ensure a representative sample of internet users across each country.

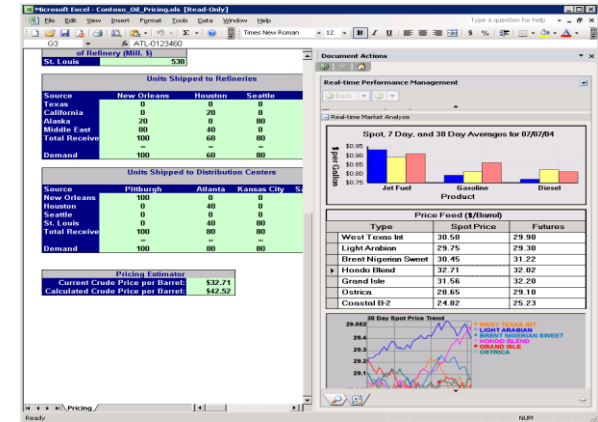
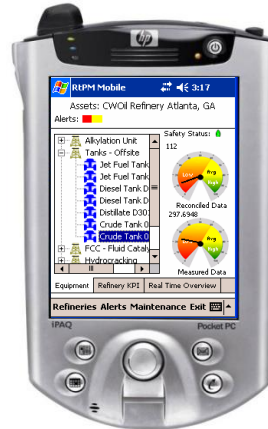
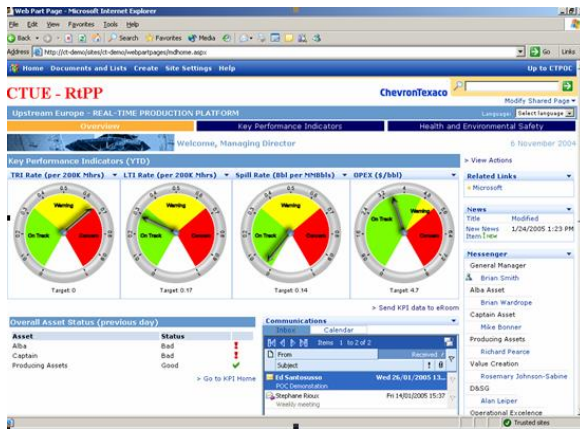
PI and Collaboration

Collaboration is

*how people create, share and use information
to make decisions and direct actions*

PI creates collaboration

PI Is a Collaboration Infrastructure



Management



Technicians and Specialists



Vendors

Equinix at a Glance

➤ Leading provider of global data center services

➤ Operate data centers in 18 key markets in the U.S. Europe and Asia-Pacific

➤ 300+ of the largest networks

➤ 9 of the 10 largest content sites



EQUINIX



Equinix Engineering Objectives

Objective:

- Be the best in the business in customer service and support

Approach:

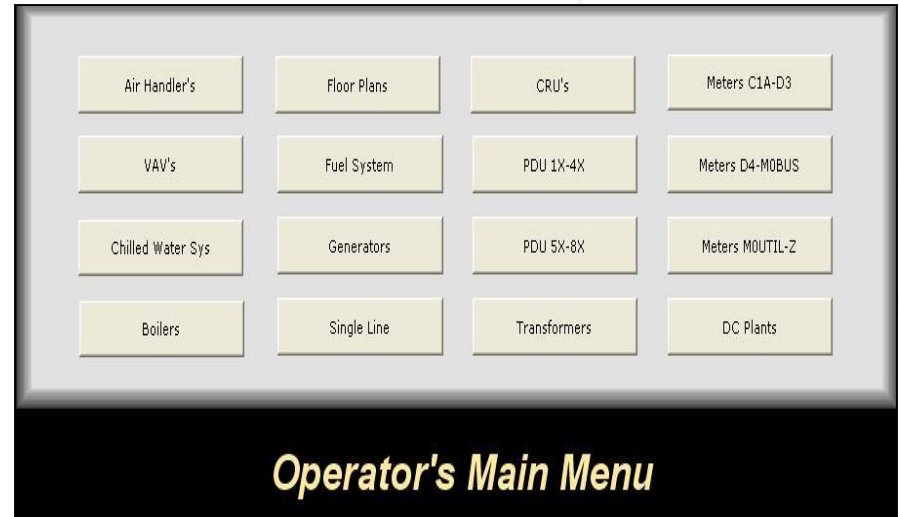
- Staff with highly qualified personnel
- Operate centers in a consistent manner
- Constantly improve – apply “lessons learned” (to design, construction and operations)

Collaboration is essential

Building Collaboration at Equinix

Existing SCADA System

- **Equipment Diagnosis – Good**
- **Installing new customers – *not good***
- **Outage notification – *not good***
- **Management reports – *Useless***
- **PUE – *useless***



DC Executives weren't getting performance information

DC Managers spent too much time creating spreadsheets

DC Engineers wasted time sorting through alarms

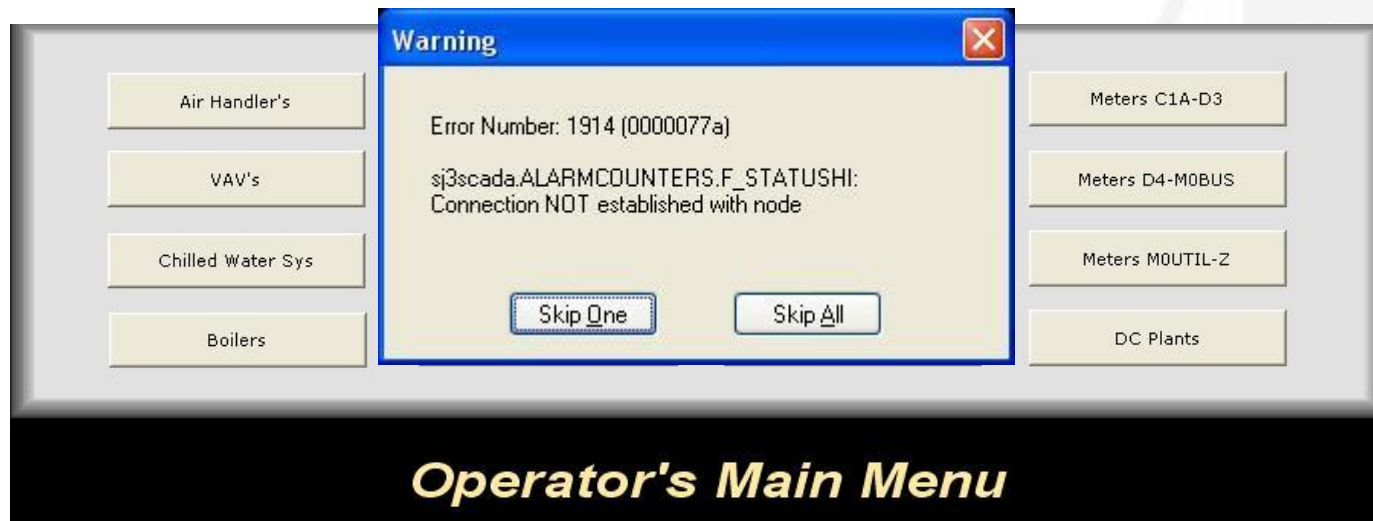
Building Collaboration Quickly

Equinix Project Scope

1. Establish stable, reliable infrastructure in Phase 1
2. Fix Alarms
3. Build tools that simplify new customer installs
(e.g. System always shows power panel with available power)
4. Build tools for monthly summaries)
(e.g. Automatically generate monthly energy usage report)
5. Build tools for on-going Maintenance
(e.g. Procedure to set control points on cooling system)

Data Center Upgrade Project

Tags had errors!



Caused by too many software vendors !!!

Six Person-Weeks Later:

- ***Converted 15,000 tags from one data base to PI***
- ***Converted 115 screens from HMI to PI***
- ***Connected 108 controllers to PI***
- ***Re-organized 2000 alarms & notifications***

After Installing PI

Increased reliability – a lot!

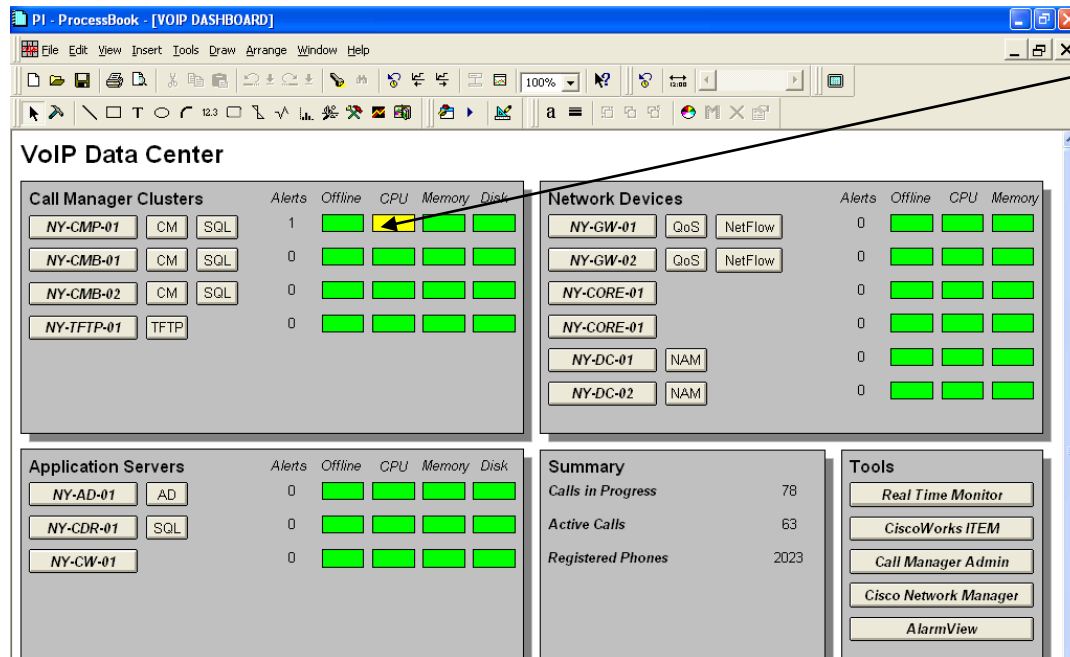
- Reduced software manufacturers from 6 to 1
 - Removed iFix, JCI, Modicon, Applicon, Wonderware, PowerManager
- Reduced servers from 2 to 1
 - Two Scada servers replaced by 1 PI server
 - Multiple single points of failure to none

Increased Performance, Capacity

More data available to users

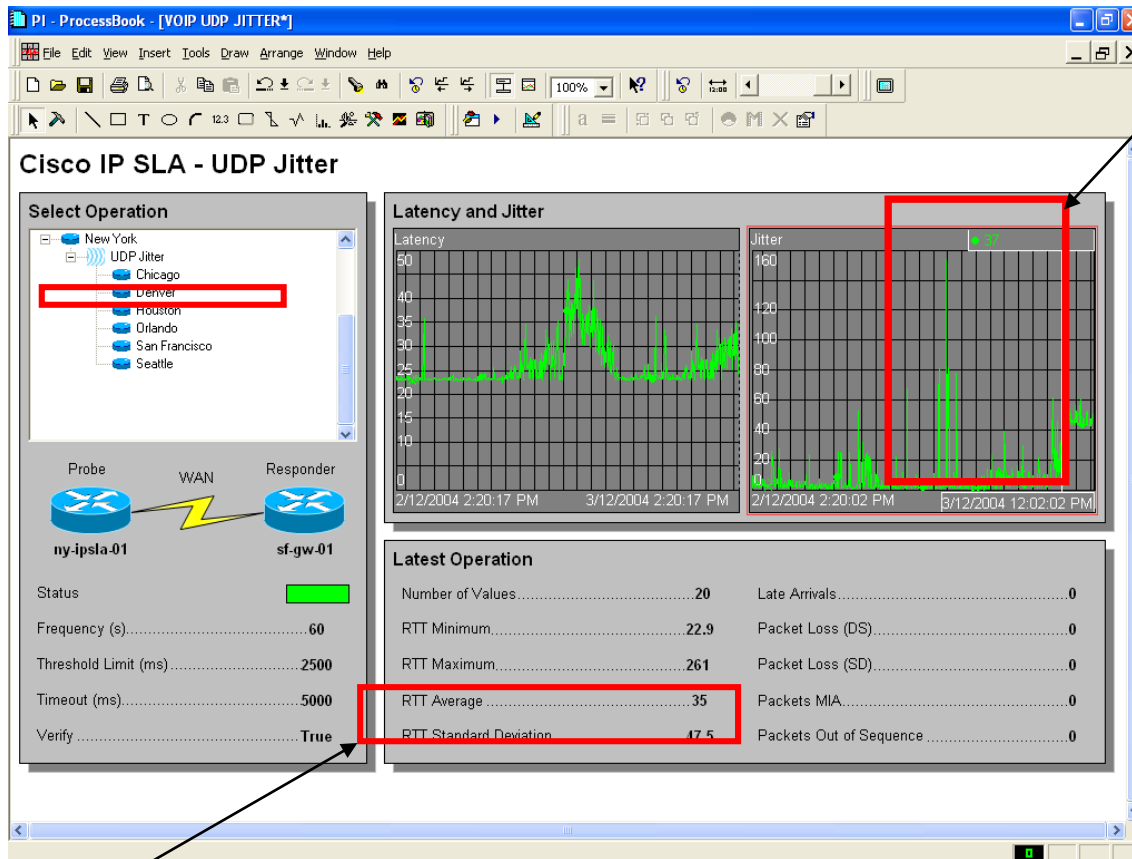
Collaboration Example

The administrator opens the “Data Center Dashboard” to verify the status of all core systems. Nothing is red so all systems appear to be operating fine. Also, there were no calls to the help desk from any other departments.



The moderately high CPU on a Call Manager is probably not the cause of this problem.

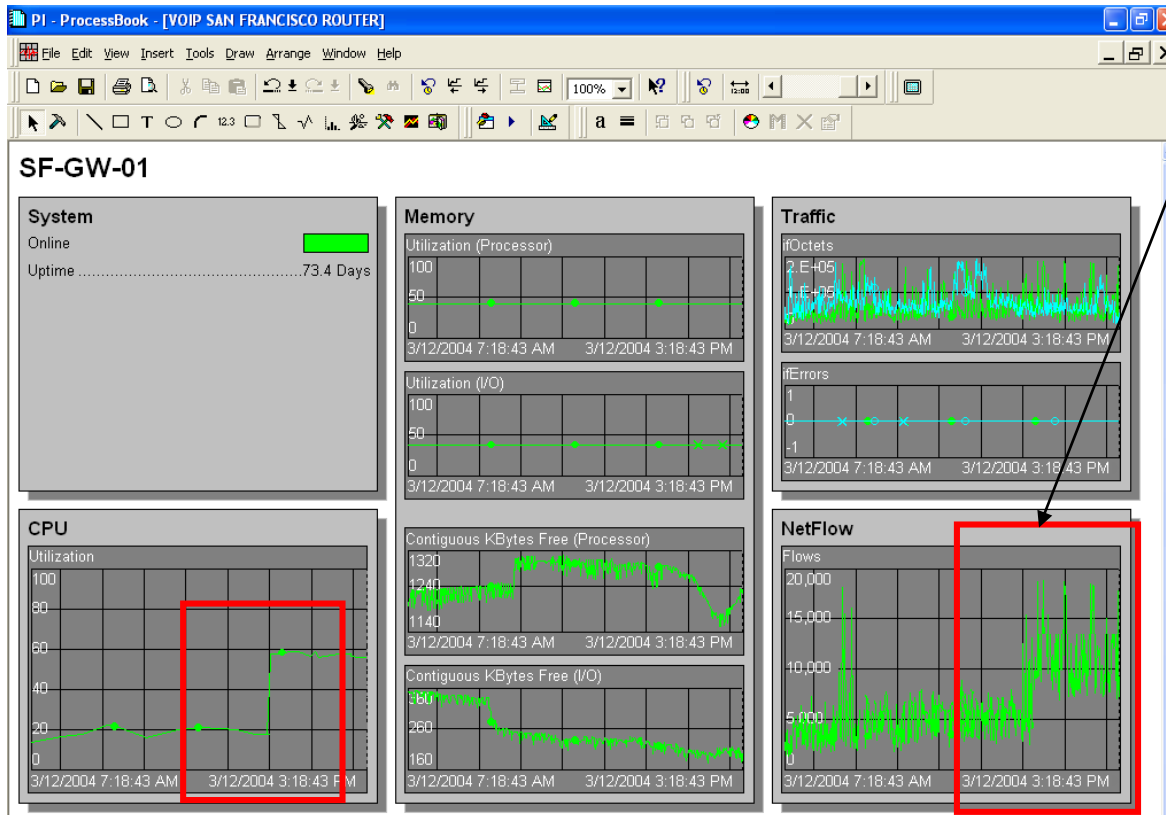
Engineer B Discovers the Symptom



The Jitter measurement appears to increase to an unacceptable level so a cursor is used to identify the precise time that this occurred.

The event occurred at 12pm and corresponds to the time of the reported problem.

Engineer C Analyses the Root Cause



Network traffic has not increased proportionally to the number of flows.

This is unusual as it means more connections are traversing the network but the network is not transporting more data.

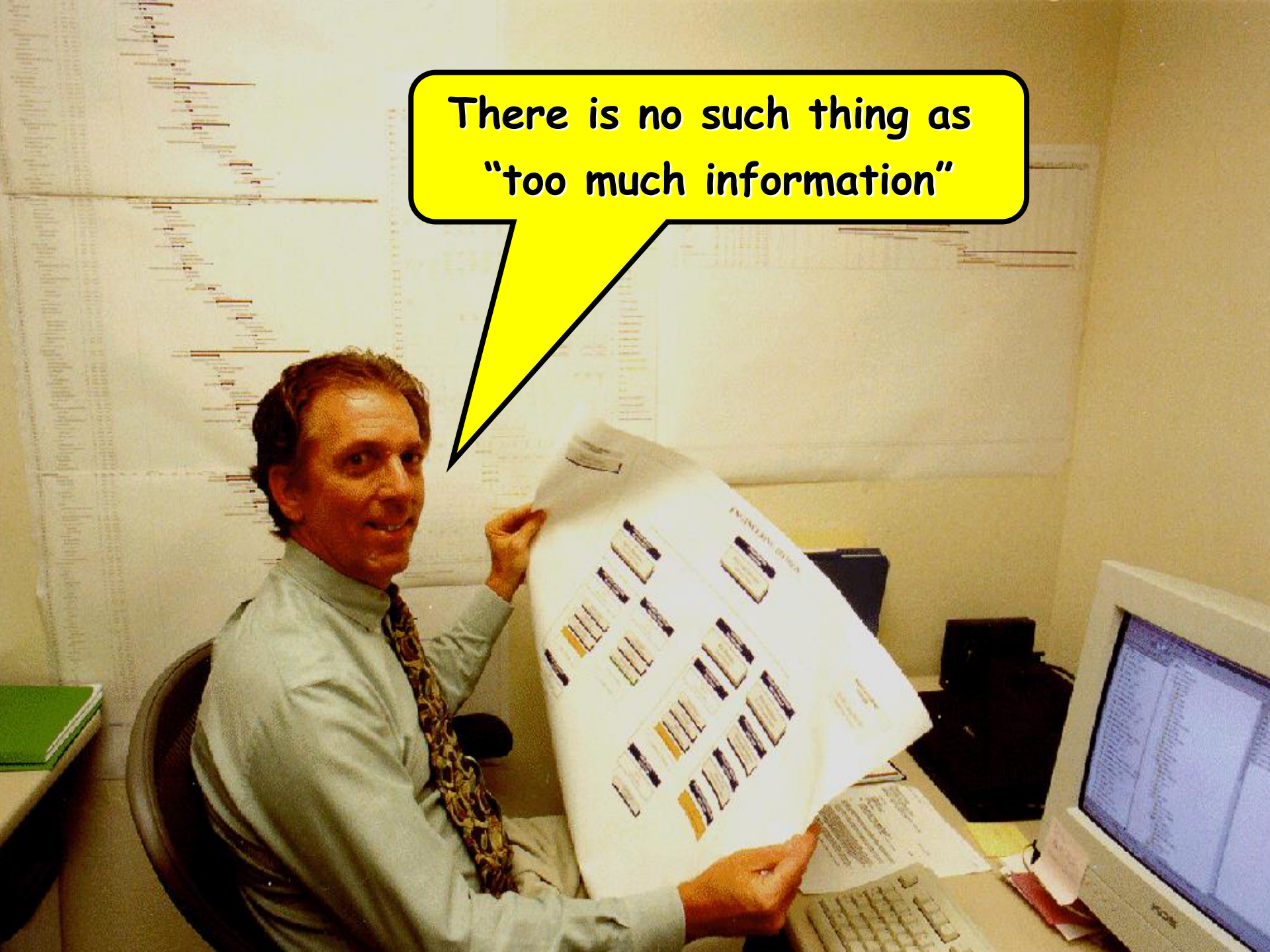
Engineer D Fixes the Problem

The connections are identified to originate from several devices, crawling the network. This is a characteristic of the SQL Slammer Worm.

The offending machines are reported to IT support for cleaning.



There is no such thing as
"too much information"



What Changed at Equinix?

Plant engineers can now assess situations without becoming computer experts.

Replaced “management by spreadsheets” with real-time reports created by users

Converted a potentially large and costly IT project into several inexpensive integration projects.

Value to Equinix

- *Reduced time to detect, repair outages*
- *Reduced time to install new customers*
- *Site Directors plan capacity rather than fill out spreadsheets*
- *Executives manage energy, staffing costs*
- *Plant Operating Engineers are more effective*

What Surprised Us...

Many small projects were far more effective and easier to execute than a single big project.

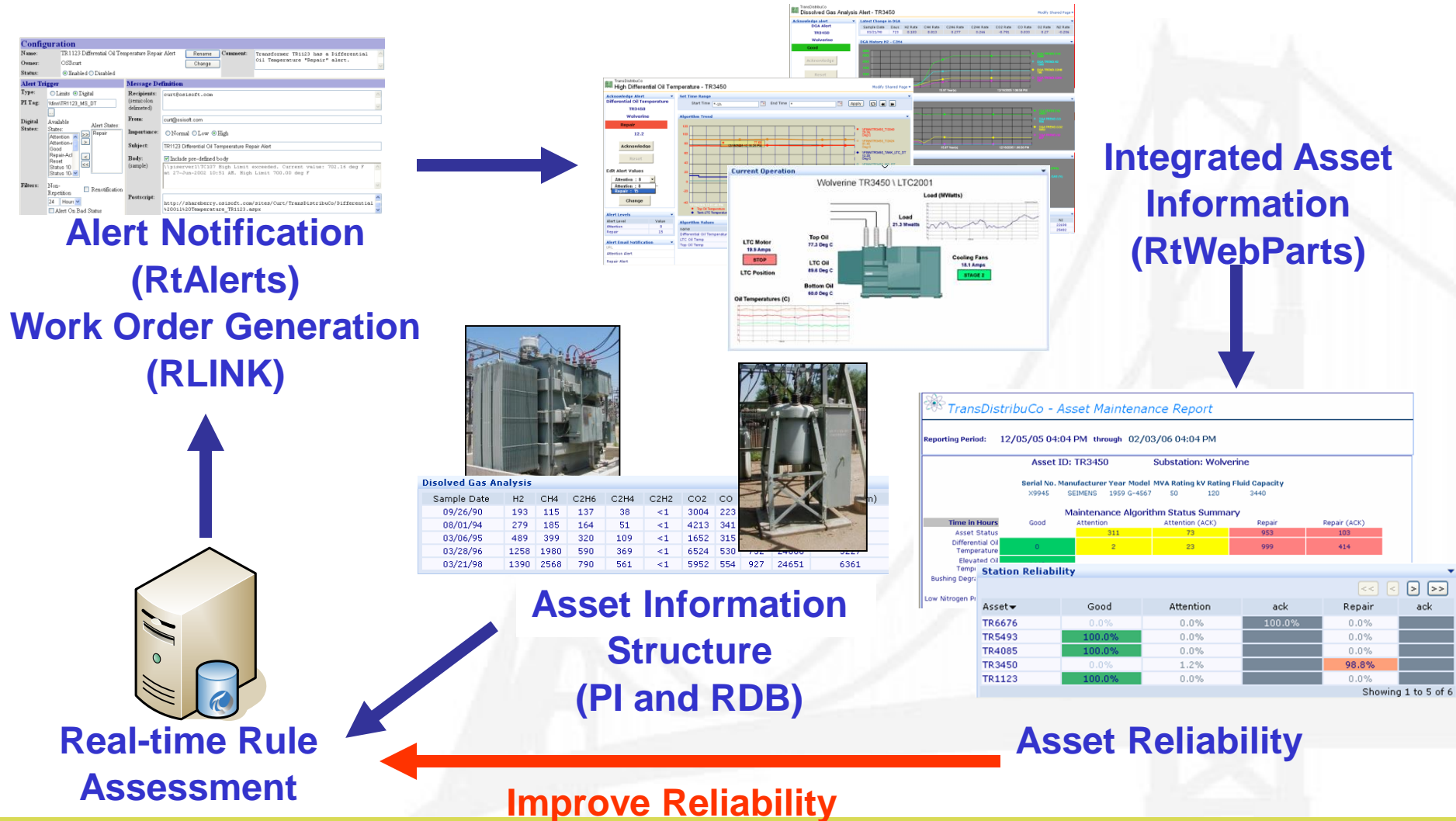
- Easier to justify and purchase
- Less specification cost
- Less cost to vendor to learn site specifics- i.e. “on-the-job” training.

Future Possibilities

Collaboration

**You produce it when you organize
your information**

Organized Information



Conclusion

Collaboration is

*how people create, share and use information
to make decisions and direct actions*

PI creates collaboration

We Want to Thank...

Data South Systems - Charles Campbell, Founder

GrITS for ProcessBook is a Graphic Import Tool Set for PI ProcessBook designed to convert DCS and other graphic images into ProcessBook displays.

It takes the CONTROL out of Control Room Graphics and allows for these graphics to be deployed throughout the Plant or Enterprise.



We converted 115 screens within days using GrITS



Ken Morikawa, Systems Engineer

Glenn Moffett, Systems Engineer

They always made sure we knew what we were talking about

Questions?

