

Data Center Remote Management

MSKCC Information Systems

BRIITE Conference

May 4, 2006



Memorial Sloan-Kettering
Cancer Center

MSKCC Data Center

- 44,000 sq. ft. facility located in Lyndhurst, New Jersey
- 700+ Windows-based servers, 170+ UNIX servers, 2 Mainframes
- 525 Terabyte of tiered SAN storage
- Automated scheduling of 3,000+ daily jobs
- Dual OC-12 ISP links and a private DWDM Ring to all major sites







 All visitors must
sign in, get a name
tag and sign out.

First Steps in Remote Site Management

- Co-location site vendor responsibilities:
 - Environmental conditions
 - Communication line provisioning
 - low-speed and expensive
 - Access
- Hardware vendor responsibilities:
 - Storage unit monitoring
 - Hardware maintenance
- MSKCC responsibilities:
 - Storage replication process
 - Communication availability



Relocation to a MSKCC-owned site

- Opportunity to build our own DR site
- Assume full site responsibility
- Design/build network infrastructure
- Increased Service Level expectations



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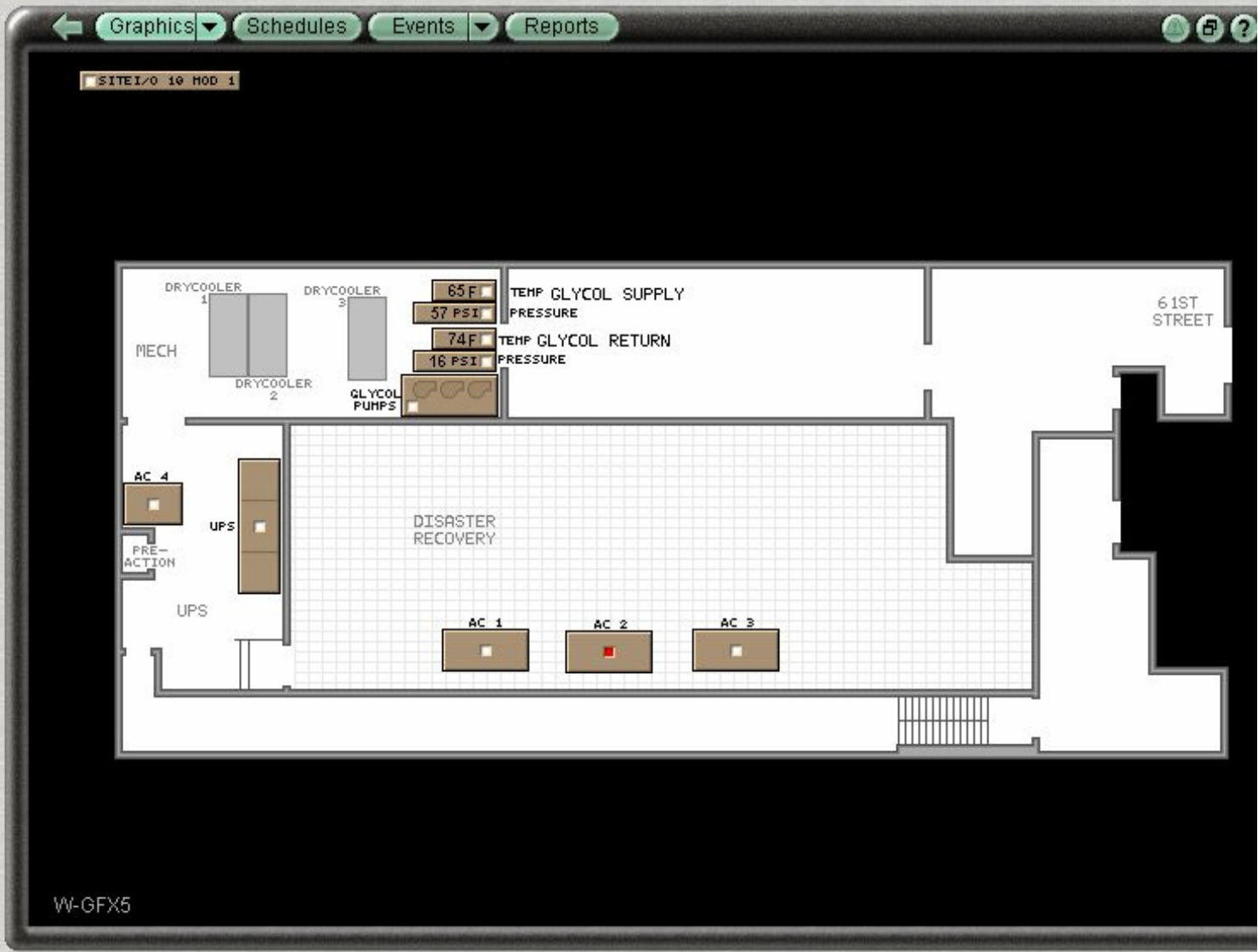
Remote Site Infrastructure

- 3 Dry-coolers
- 3 Glycol pumps
- 4 x 22 Ton A/C units
- 1 38,000 Cubic Feet per minute air handler
- 1 150 KVA UPS system
- 1 Dry-Charged sprinkler system
- Liebert SiteScan
 - Infrastructure management





- Memorial Sloan-Kettering
 - Computer Room A
 - Computer Room B
 - UPS Room
 - 5th Floor Comp Room
 - Disaster Recovery Site
 - AC 1 G2
 - AC 2 G2
 - AC 3 G2
 - AC 4 G2
 - Site I/O 10/0 Mod 1
 - Electrical Oneline
 - Roof



GEO NET GRP CFG

Environmental Monitoring

- Temperature
- Humidity
- Flood Detection
- Air Flow
- Audio Detection –
 - Monitor decibel level
 - Ability to listen real time
- Motion Detection –
 - Via built-in Web Camera
 - Email captured image
- Fire Sprinkler Monitoring



Appliance: 140.163.142.30

Add Appliance

Logon

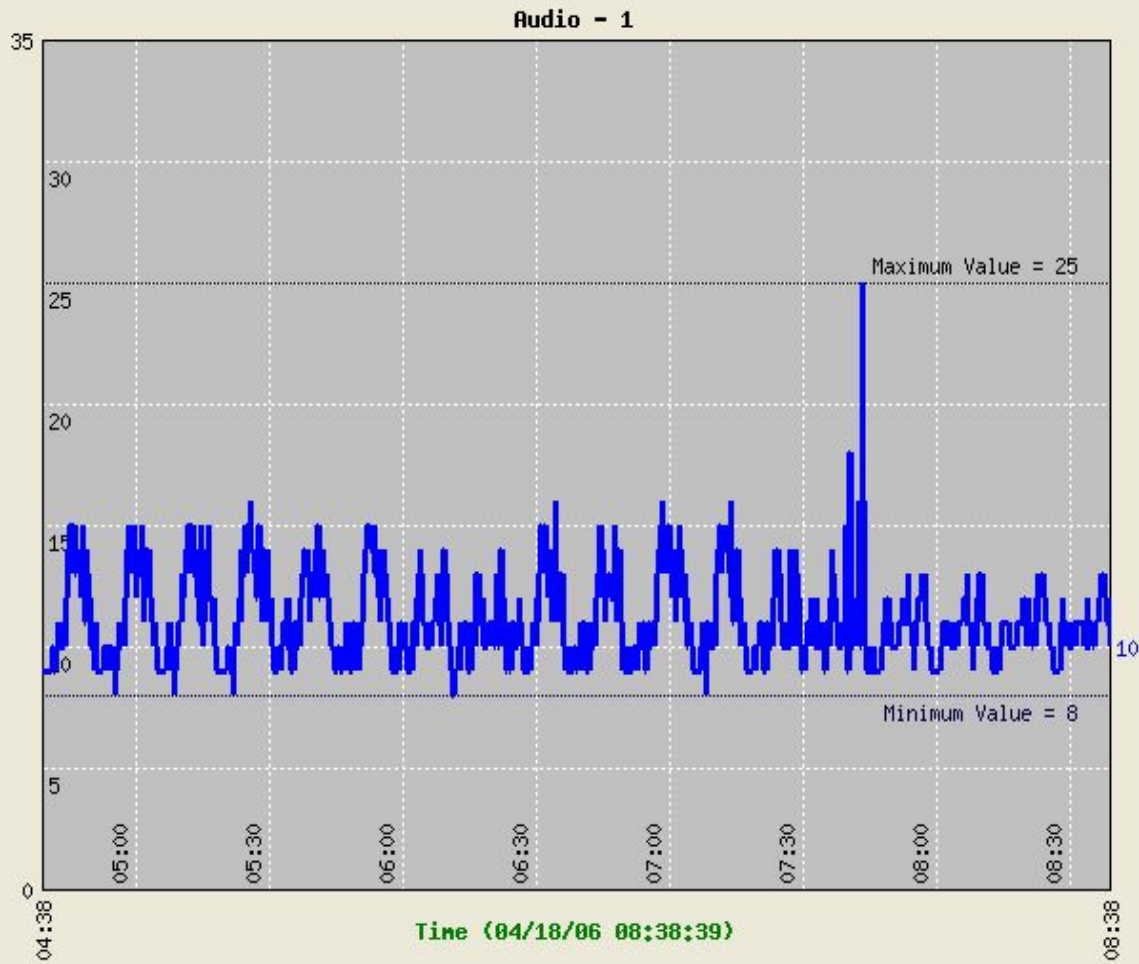
- WallBotz 500
 - 0 (docked)
 - Camera Pod 2230157 (docked)
 - 1
 - Camera Pod 2230174
 - Output Relay Pod #1

Camera View Alerts View Graph View Configuration About

Pods 1 Sensors Audio

Start time 4 hours End time Present Refresh interval 60 seconds

Sensor	Reading	Status
Air Flow	100 ft/min	--
Audio	10	OK
Dew Point	44.1 °F	--
Fire Sprinkler (Ex...	Open	OK
Fluid Detector (E...	Dry	OK
Humidity	33 %	--
Temperature	75.2 °F	--



NETBOTZ® Last update: 4/18/06 8:38:57 AM

Computer Monitoring & Control

- Remote console capabilities
 - Terminal Servers for UNIX processors
 - HP Integrated Lights Out product for Windows servers
- Treat each DR server as production
 - Virus Protection
 - Intrusion Detection
 - Availability Monitoring
- Ability to turn power on/off remotely
- Feedback to HP/OpenView



ITO Node Bank

Map Actions Edit View Window Help

Windows NTSolaris PACS_ITO OpenView OpenNetwork Devices

Netbotz Mainframe IDS IBM AI HoldingArea HP-UX

Hans Test Gr_FileNet EMS Develo_DRA Site ServerDMZ

CRDB CCU LINUX

New Object Holding Area

VPO Application Bank

Map Actions Edit View Window Help

BroadcITO StaPe PhysicalAlert VPO Virtual Tia check snmp conf file

DevelopEMERGEIEMS ToolFileGlanceP_HA AdmiHA Info Jovw LVM

MPE Tool MetaFrameMgmt Clu_NNM TocNT TNet Act Net Con Net Diag

Net Neti_Networkware PNetworkware TNetWNotif OV PerfCOV ServOperations

PET OfflineRemRemedy SPI Repor_SNMP D_SSP TocTelAlertTemplates

ToolUN*X ToolUnmanag_VERVP PerformVPO AdmiEMC ControlCenter

New Object Holding Area

Message Browser [opc_adm on OpC.mskcc.org]

Browser Actions View Window Help

Sev.	SUIAONE	Date	Time	Node	Application	MsgGroup	Object	Message Text
Crit	--XSXX-	03/27/06	11:25:31	phovw1.msk	WEB_PAGE_MO	OpC	MSKCC Ext	The website http://www.mskcc.org/mskcc/html/44.cfm
Crit	--X---	04/01/06	12:15:04	OpC.mskcc.	dr_ping	OpC	auto_ack	30 of the 58 devices at the DR is not responding t
Crit	--XSX--	04/08/06	02:09:42	phovw1.msk	WEB_PAGE_MO	OpC	MSKCC Ext	The website http://www.mskcc.org/mskcc/html/44.cfm
Crit	X-X--X-	04/16/06	07:21:32	bobnetbotz	NETBOTZ	Operation	bobnetbot	Alarm occurred on Cryomech 1 in room MRI 1140 of t
Norm	--X---	04/17/06	07:00:04	OpC.mskcc.	morningswee	OpC	morningsw	Morning Sweep Reminder see instructions!
Min	-----X-	04/17/06	08:15:12	OpC.mskcc.	HP VantageP	OpC		Pet Closed list, if any
Min	-----X-	04/17/06	08:15:12	OpC.mskcc.	HP VantageP	OpC		Pet Stopped list, if any
Norm	--X---	04/17/06	10:18:32	OpC.mskcc.	HP OpenView	OpC	opcuiadm	The following configuration information was succes
Norm	--X---	04/17/06	10:18:34	phovw1.msk	HP OpenView	OpC	opcdista	The following configuration information was succes

3 0 2 0 3 0 0 1 Active Messages Autoscroll On

Own Highlight Details... Perform Action Annotations... Acknowledge

Physical Access

- Are there any open doors?
- Vendor Access
- MSKCC personnel arrive unannounced
- How do you document each visit?
- Visual contact with people working alone





DR Site Camera Surveillance
 For Information & Support: openview@mskcc.org
 Computer Room Inside Phone: (646) 227-2331
 Computer Room Entrance Phone: (646) 227-2330



Comp Cam 1
[1](#) [2](#) [3](#) [4](#) [5](#) [6](#)

Comp Cam 2
[1](#) [2](#) [3](#) [4](#) [5](#) [6](#)

Enhanced View

- [Glass Door](#)
- [Mech Entrance](#)
- [Comp Entrance](#)
- [Comp Cam 1](#)
- [Comp Cam 2](#)
- [Badge Photo](#)

Image Snapshot

- [Glass Door](#)
- [Mech Entrance](#)
- [Comp Entrance](#)
- [Comp Cam 1](#)
- [Comp Cam 2](#)

Lock Control

- [Unlock Glass Dr](#)
- [Unlock Mech Rm](#)
- [Unlock Comp Rm](#)

Comp Entrance Wed Dec 21 09:54:44 2005



Michael E. Kelleher
NEW YORK STATE
DRIVER LICENSE

207 562 983



DOB: 10-18-72
KELLEHER, MICHAEL E
52 BARTLEY LANE
WEST SAYVILLE NY 11796
SEX: M EYES: BL HT: 6-00 CLASS: D
E
ISSUED: 11-09-02 EXPIRES: 10-18-10
Michael E. Kelleher
72875200

PLACE HERE

Comp Room 1 Mon Apr 17 11:21:56 2006



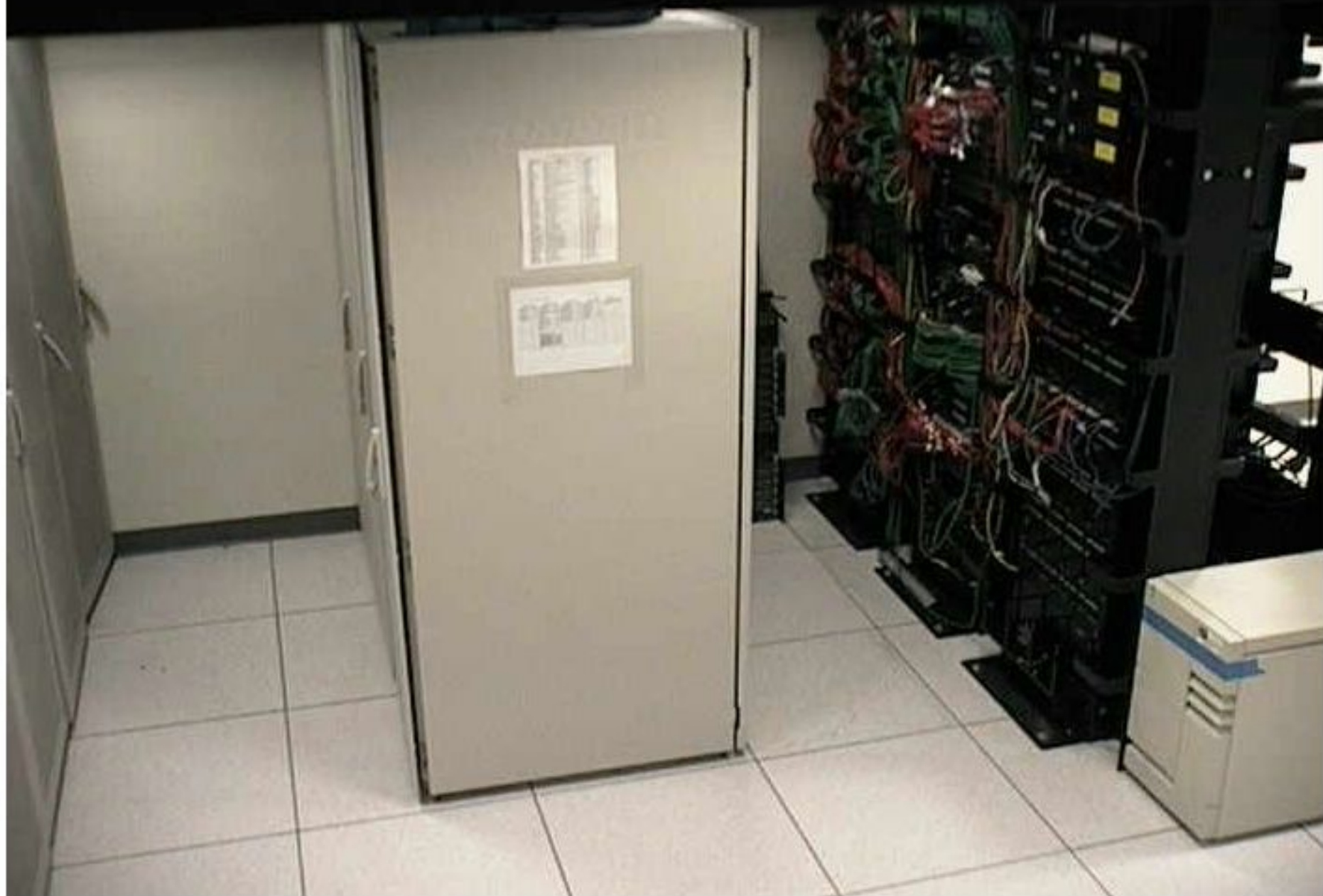
Comp Room 1 Mon Apr 17 11:22:43 2006



Comp Room 1 Mon Apr 17 11:22:58 2006



Comp Room 1 Mon Apr 17 11:23:12 2006



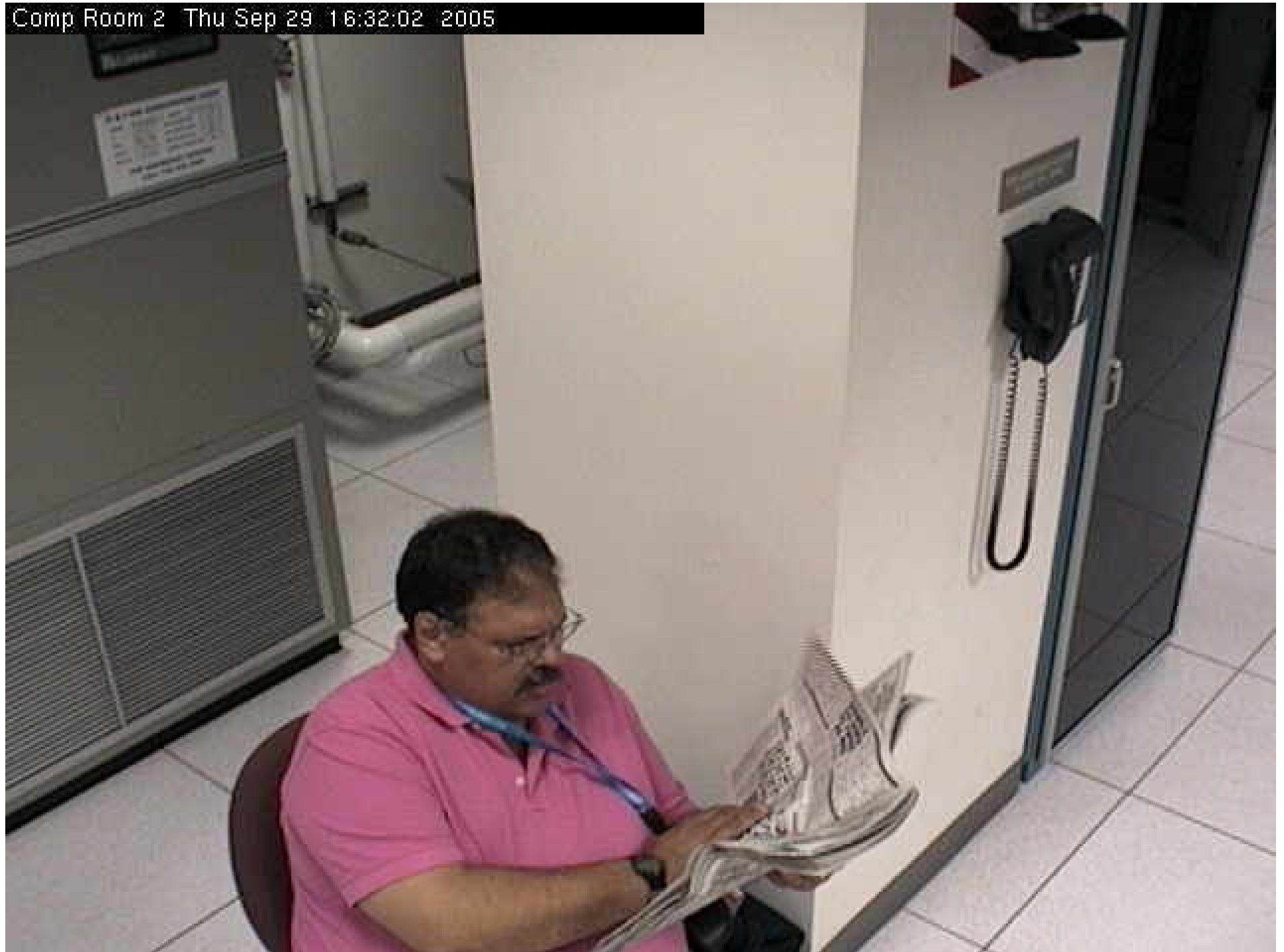
Comp Room 1 Mon Apr 17 11:23:24 2006



Comp Room 1 Mon Apr 17 11:23:38 2006



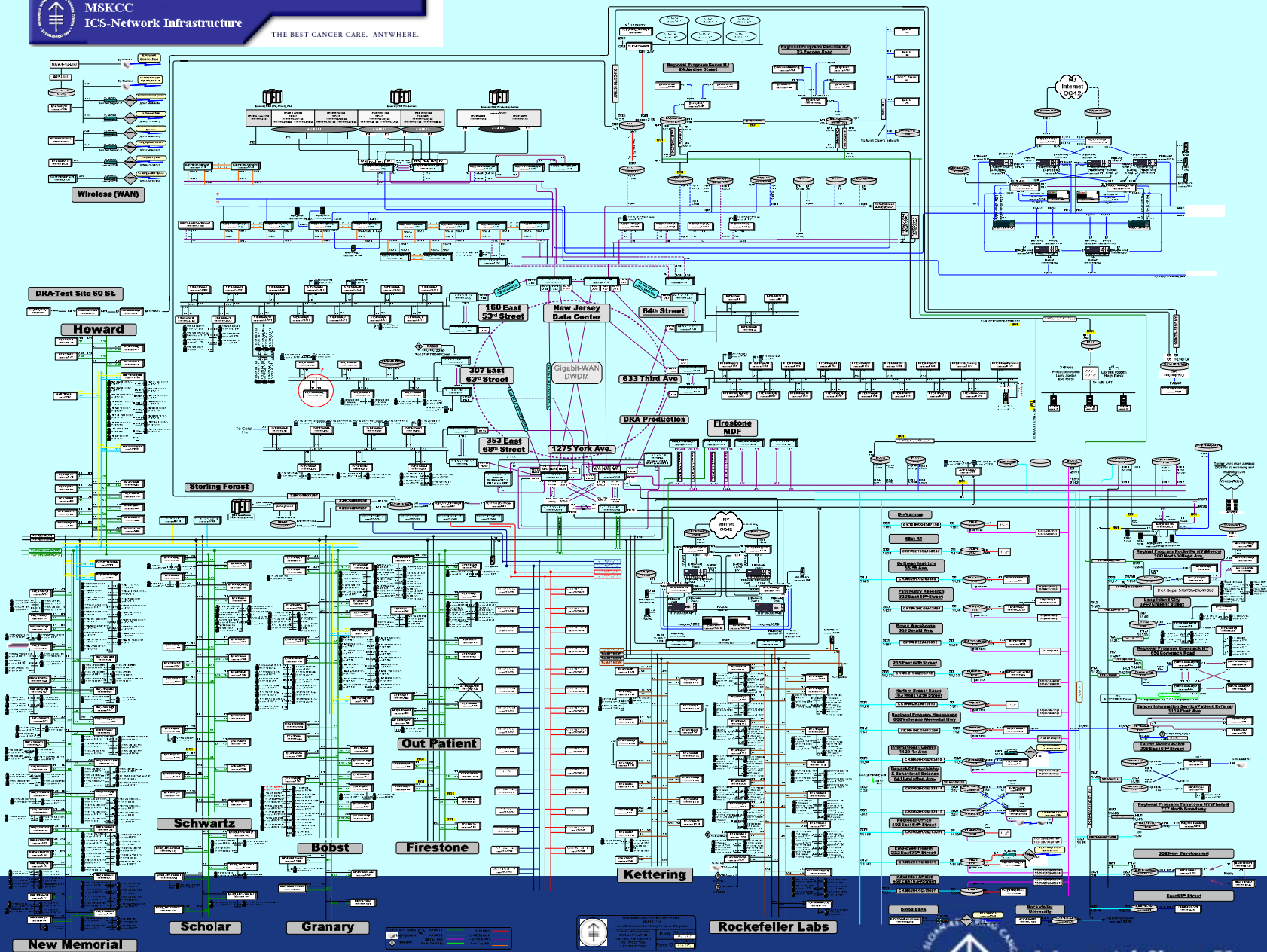
Comp Room 2 Thu Sep 29 16:32:02 2005



Network Overview



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Questions?

- Please feel free to contact us if you would like additional information.

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