



Voice over Internet Protocol(VoIP) Review

Jeff Rohrs
Business Technology Services
Chief Technologist

A look ahead

Sections:

1. VoIP Project Recap
2. Current Environment
3. Future Plans



VoIP Background

- ▶ **\$2.2 Million project to implement Voice Over Internet Protocol (VoIP); 7000 IP phones, 2600 Analog, and 40 call centers.**
 - ▶ \$1,950,000 Siemens Telephone system, phones, and gateways.
 - ▶ \$200,000 Power over Ethernet (POE) mid-span injectors and power adapters.
 - ▶ \$24,000 Patch cords
 - ▶ \$20,000 Miscellaneous wiring and incidentals

Date	Activity
March 2010	Cost Savings Committee recommendation based on BTS proposal (spend money to save money).
May 2010	BTS Board Approved May 2010.
June 2010	BCC Approved June 2010.
August 2010	Project Starts (deployment of first phones).
September 2011	Project Officially Complete.



Savings

- ▶ Projected savings was \$770,000 annually.
- ▶ Actual savings \$766,695 annually.
- ▶ Over \$7.5 million estimated savings over 10 years.

Savings Sources:

- ▶ Telephone Carrier (local & long distance).
 - ▶ Telephone Equipment Maintenance & Software Costs.
 - ▶ Reduction in BTS staff.
-



Non-Fiscal Drivers

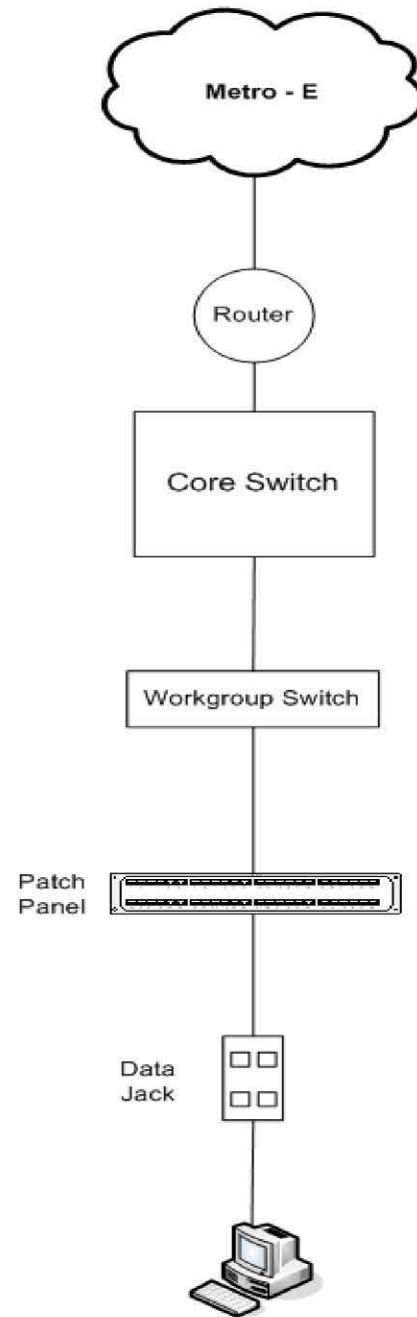
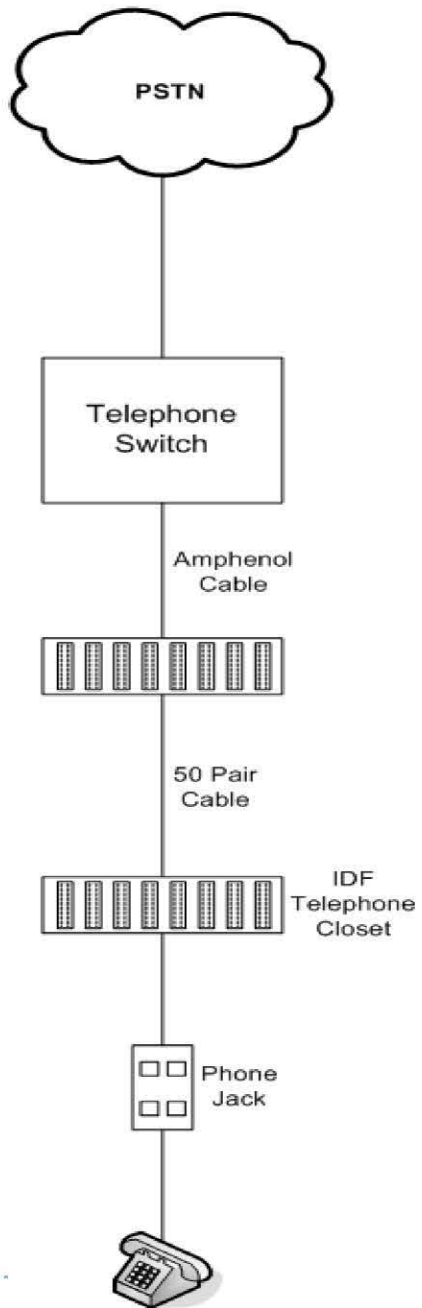
▶ **Strategic:**

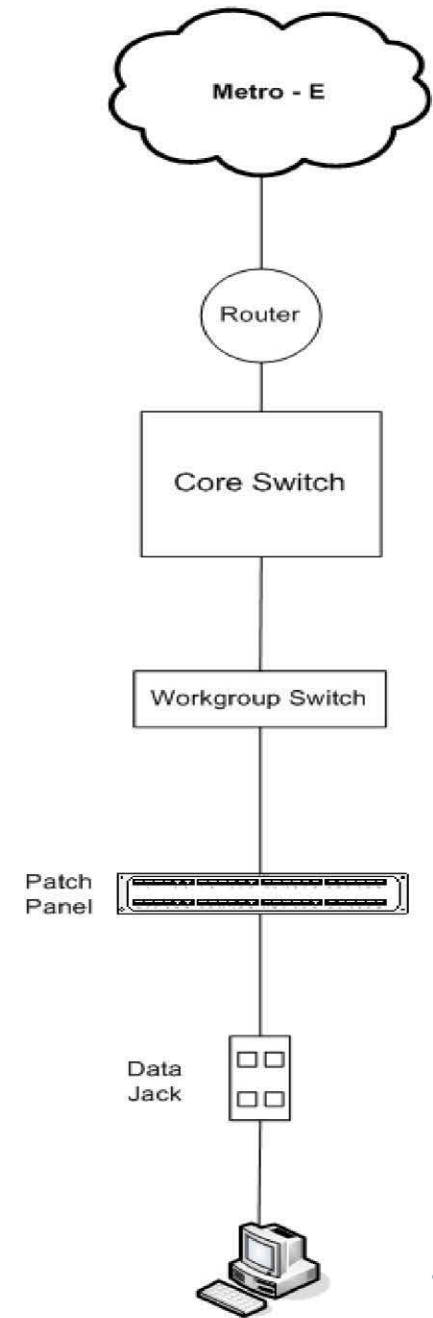
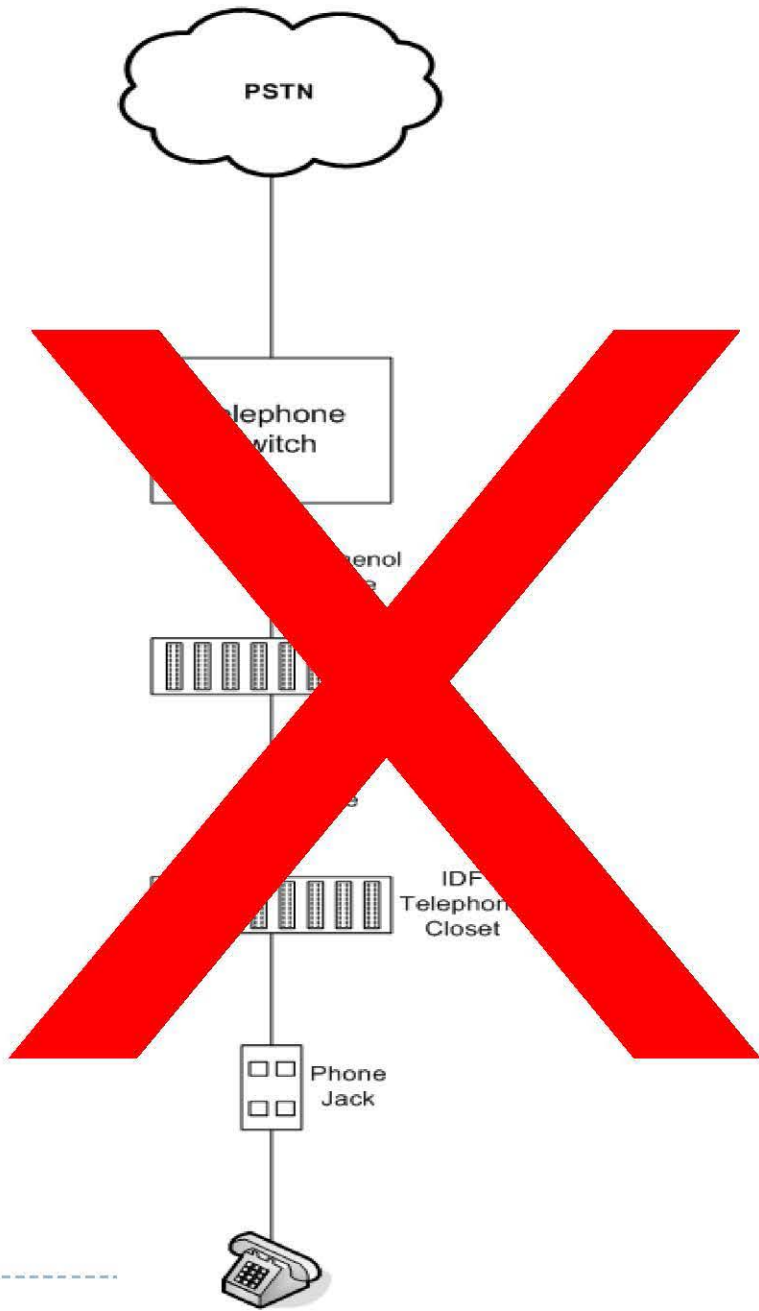
- ▶ Industry trends.
- ▶ Pinellas County has been using VoIP since 2002.
- ▶ BTS targeted VoIP as a strategic direction since 2007.
- ▶ Cost savings from reduced cabling, equipment, and BTS staff.

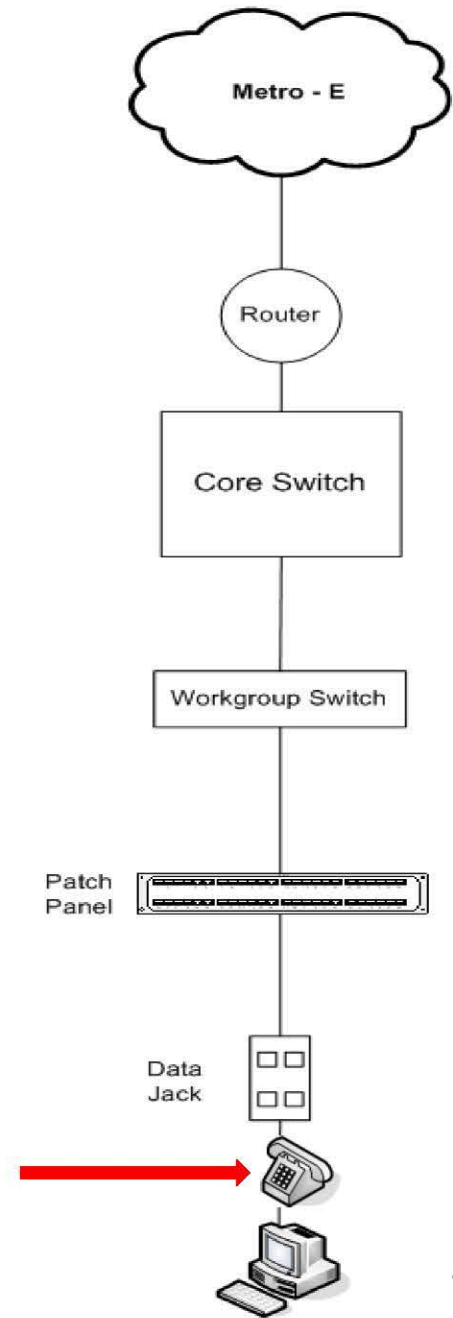
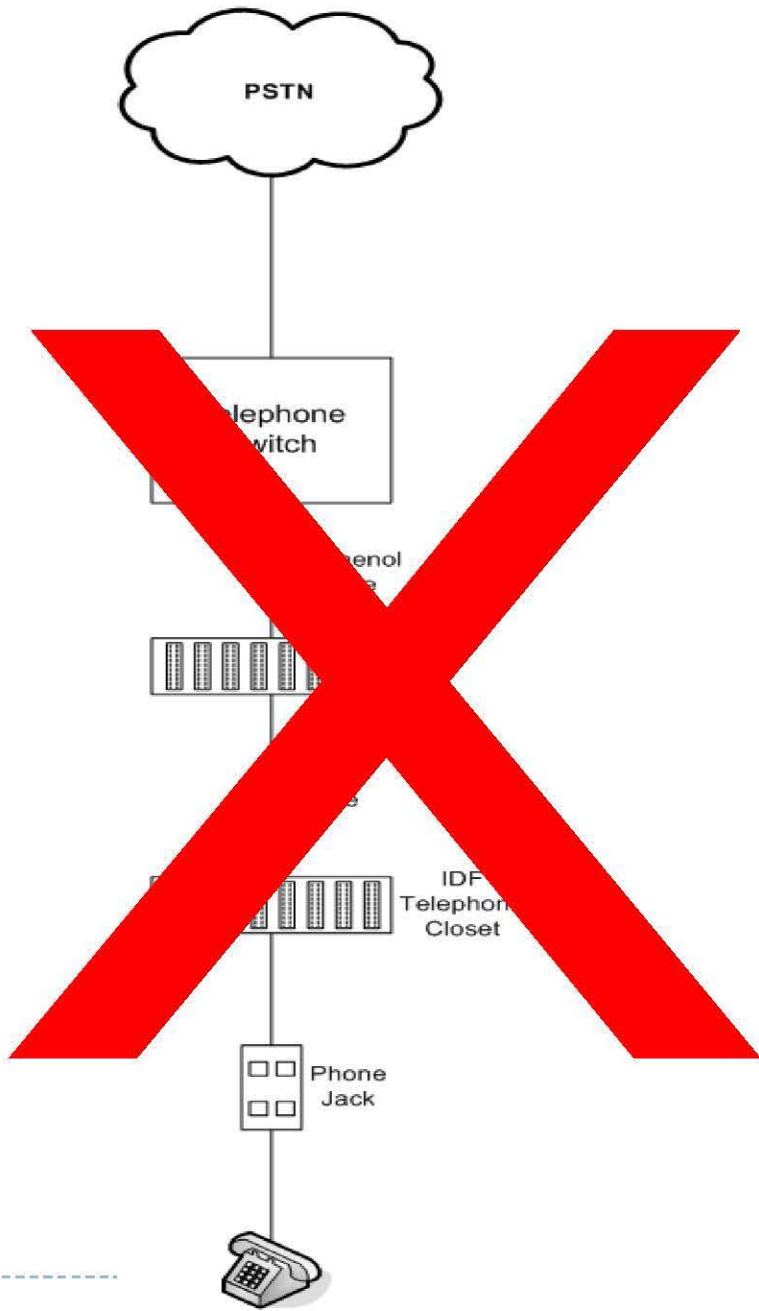
▶ **Benefits:**

- ▶ Simplified Management (common platform, one system)
- ▶ Unified Communications (Presence)
- ▶ Call Center – skills based routing, workforce management, surveys & quality recording.









Reduced Infrastructure

- ▶ From 17 Telephone switches spread across County to one system countywide.
 - ▶ Simplified Management (2 Servers).
 - ▶ Less wire, material, vehicles and people.
 - ▶ Easier call routing.
- ▶ From 6 standard desktop phones models to a single standard model countywide.



Project Metrics

- 7694 VoIP Phones Installed.
- Over 2600 Analog Lines (Fax, modem...)
- 40 Call Centers (100,000 calls a month)
- 24,000 patch cords.
- Installed 26 Network Routers
- Installed 100 Network Switches (removed 108 EOL switches from environment).
- Installed 270 Power Over Ethernet (POE) Injectors.
- Installed 136 Mediatrix Analog Gateways.
- Installed 20 Open Branch Gateways.
- Installed 8 Servers (OSV, ACD, UC, Media, voicemail).

Across:

86 Unique Addresses, 158 Buildings, 246 Floors



Parallel (Supporting) Projects

- ▶ **Migrated from Verizon Wide Area Network to Bright House Metro Ethernet.**
 - ▶ Required to transport converged data and voice traffic with ability to control and prioritize.
 - ▶ Annual savings \$459,328.84 (\$4,593,280 over 10 years).

- ▶ **Migrated Local and Long Distance to Time Warner Telecom.**
 - ▶ Improve diversity for inbound/outbound calls
 - ▶ Add additional capacity.
 - ▶ Includes 150,000 minutes of long distance per month.
 - ▶ Annual Savings \$239,695.00 (\$2,396,950 over 10 years).



Total Savings

	Annual Savings	Ten Year Savings
VoIP Savings	\$ 766,695.00	\$ 7,666,950.00
Bright House Savings	\$ 459,328.84	\$ 4,593,288.40
Carrier Savings (Time Warner)	<u>\$ 239,695.00</u>	<u>\$ 2,396,950.00</u>
Total Savings	\$ 1,465,718.84	\$ 14,490,238.40



Business Impact

- ▶ **Parallel Projects:**

- ▶ VoIP
- ▶ Bright House Metro-Ethernet
- ▶ Time Warner Telecom (Local & Long distance).

- ▶ **Aggressive Timelines (budget driven).**

- ▶ **Resource Constraints.**

- ▶ During the migration there was an influx of issues and requests which created a backlog.



Current Environment



VoIP Incident Tickets

September 1 through January 10, 2011

- ▶ Approximately 10,200 Telephone/devices.
 - ▶ 479 Incident Tickets Reported to BTS.
 - ▶ Averaged out:
 - ▶ 119 per month
 - ▶ 3 per day



VoIP Incident Tickets

September 1 through January 10, 2011

- ▶ Approximately 10,200 Telephone/devices.
 - ▶ 479 Incident Tickets Reported to BTS.
 - ▶ Averaged out:
 - ▶ 119 per month
 - ▶ 3 per day

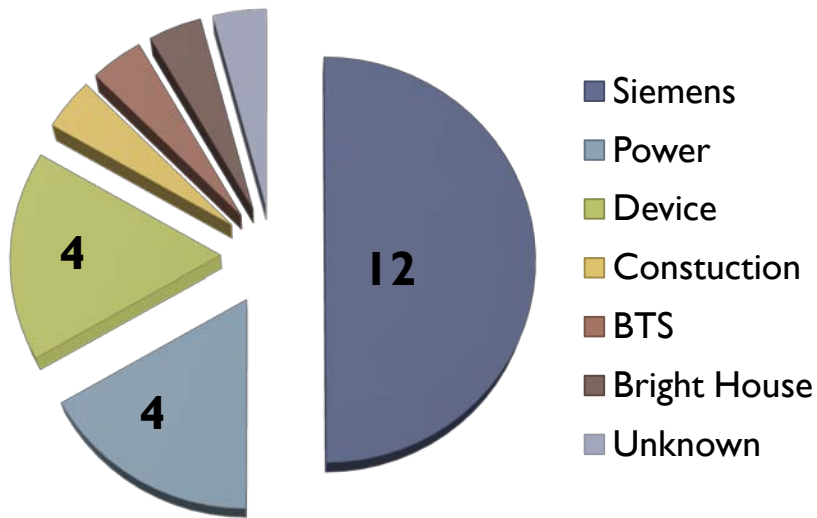
- ▶ Approximately 3600 Desktop Computers (BTS Managed)
 - ▶ 1091 Incident Tickets Reported to BTS.
 - ▶ Averaged out:
 - ▶ 272 per month
 - ▶ 8 per day



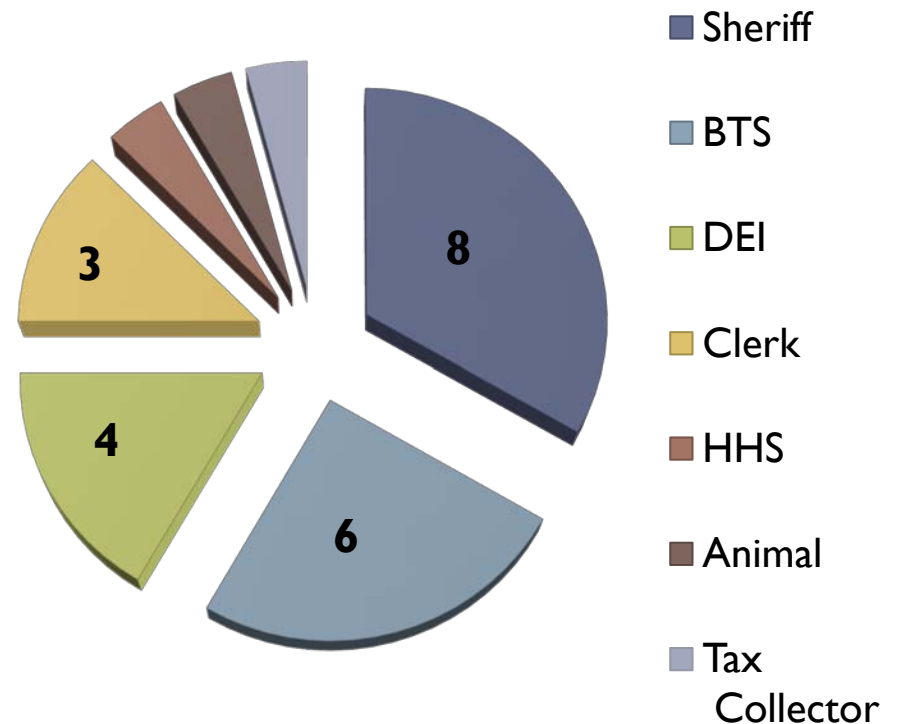
Incidents Summary

- ▶ 479 Incidents reported September 1 – January 10th.
- ▶ 24 Priority 1 Incidents.

Pri-I Incidents Breakdown



Pri-I Incidents Breakdown



Incidents by Agency\Department

Agency\Department	Incidents	Agency\Department	Incidents	Agency\Department	Incidents
Sheriff	105	Juvenile Assessment	5	Econ Dev	2
DEI	63	Communication	4	Emergency Communications	2
Clerk	42	Medical Examiner	4	Human Rights	2
BTS	33	Outside Customer	4	OMB	2
6th Jud Court	23	PCCLB	4	Planning Counsel	2
BDRS	19	Animal	3	Purchasing	2
EMS	17	Communications	3	Supervisor of Elections	2
Tax Collector	17	Community Dev	3	Victim Witness	2
State Attorney	15	Community Law	3	Airport	1
Property Appraiser	14	Emergency Mgmt	3	Animal	1
PCR/Parks	13	HR	3	DEI	1
Public Defender	12	Risk Mgmt	3	Fleet	1
HHS	9	Air Quality	2	Human Resources	1
Justice & Consumer	9	Commissioner	2	Salvation Army	1
REM	8	County Admin	2	Social Services	1
Guardian Ad Litem	6	County Atty	2		



Power Issues

Problem:

- ▶ Aging infrastructure (DC power plants, inverters...).
- ▶ Undersized UPS equipment (longer run times).

Solutions:

- ▶ Approved \$500K this year for replacement of critical power infrastructure. Partnered with REM.
- ▶ CIP has been updated to accelerate UPS replacements with longer run time.



Bright House Issues

Problem:

- ▶ Reliability (unexpected major outages).
- ▶ Frequent use of maintenance window (1am-6am).

Solution:

- ▶ Partnering with B.H. on reengineering to improve reliability.
- ▶ Enforcing penalties (credits for outages).
- ▶ Adding redundant carrier to critical sites:
 - ▶ Sheriff Administration
 - ▶ Criminal Justice Center
 - ▶ Supervisor of Elections



Siemens Issues

Problems:

- ▶ Survivability has not worked when called upon.
- ▶ Reliability of some components (xPressions, media servers).
- ▶ Several mis-configurations have been discovered.

Solutions:

- ▶ Escalated to Executive levels within Siemens.
- ▶ Final payment pending resolution.
- ▶ A comprehensive system audit is being conducted by Siemens.
- ▶ Test plan has been developed and will be completed once the Siemens audit is complete and remediated.



BTS Issues

Problem:

- ▶ Learning Curve.
- ▶ Backlog created during migration.
- ▶ Reduced Staff prior to completion of project.

Solutions:

- ▶ Staff training and experience
 - ▶ Concerted effort to clear backlog
 - ▶ Develop standards and procedures.
-



Future Plan

First – Continue to stabilize the environment.

Second – Increase Network reliability

- UPS equipment to increase runtime.
- Redundant carriers for survivability.

Third – Working with Siemens to determine what additional redundant devices we can add to VoIP infrastructure to increase availability and disaster recovery.



Future Plan

Leverage the system:

- ▶ Unified Communications (phone, IM/SMS, Email).
- ▶ Unified Messaging (voicemail, Email, Fax).
- ▶ Mobility.
- ▶ Workforce Management (call centers).

