



The Town of Greenwich CT

Telephony Needs Assessment Analysis and Recommendations
Prepared by Leaden Associates, Inc.

September 10, 2013 1

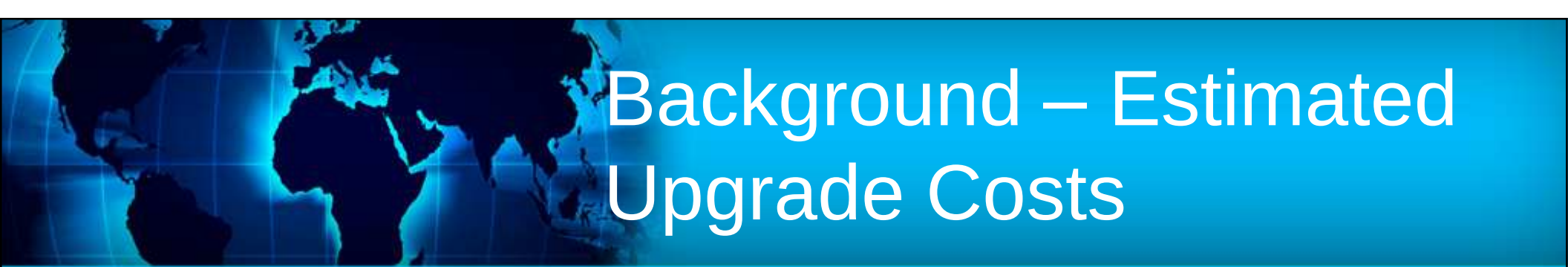
A dark blue world map with a glowing grid of latitude and longitude lines. The map is centered on the Atlantic Ocean, showing the continents of North America, South America, Europe, Africa, Asia, and Australia. The text "Recommendations and Savings Summary" is overlaid in white on the lower left side of the map.

Recommendations and Savings Summary

A blue-tinted world map is visible in the background of the top section of the slide, showing the continents of North and South America.

Background/Purpose

- Avaya has notified Town of Greenwich of End-of-Support on existing Telephony equipment at Town Hall, Nathaniel Witherell, and Library System
- Leaden Associates engaged to help identify, validate environment and determine level of risk
- Additional sites will be announced End-of-Support in 2013 and through 2015
- Fairfield County Communications/FCC (Avaya VAR to Greenwich) will continue maintenance and support software for an additional \$10,000 annually

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Background – Estimated Upgrade Costs

- Recent End-of-Support of product announcements from Avaya are requiring Greenwich to pay an estimated **\$351,376**
- Additionally, 2 Octel Voice Mail systems require upgrades, estimated at **\$120,000**
- Nathaniel Witherell expansion - **\$98,000**
Total Estimate - \$569,376
- Additional estimated costs to upgrade peripheral systems (incl. Police) at various Greenwich sites (213 phones) and Redsky E911 - **\$146,560**
Total Upgrade Estimate - \$715,936
- By end of 2015, add an estimated **\$427,000** (\$300,000 + \$127,000 Phybridge data switches - est. 1,000 phones) to replace current digital phones at End-of-Support (Grand Total **\$1,142,946**)



Cost Summary - Models

#	Description	Purchase Costs	Annual Costs	7 Year TCO Costs **
1	Current Upgrade *	\$715,936	\$158,000	\$2,353,605
2	Centralized Model	\$1,372,923	\$157,472	\$2,579,546
3	Decentralized Model	\$1,425,318	\$162,712	\$2,672,093
4	Cloud Model	\$552,671	\$574,167	\$4,952,204

* By end of 2015 all digital and IP end points/phones will be at end of life. Replacement for such is estimated at an additional \$300,000 + \$127,000 for Phybridge data switches, total of \$427,000. Grand Total Est. - **\$1,142,936.**

** Assumes 3% annual rate increase for cost of living/money



Savings

- Several savings opportunities are available to the Town of Greenwich

Description	Annual Savings
Reduced Off Premise Extensions (OPXs)	(\$15,000)
- Eliminate legacy Verizon/AT&T Off Premise Extensions/OPXs to remote sites and replace with VoIP phones using data network	
- Assumes data connectivity (private Lightpath circuit or public cable modem/DSL))	
Reduced Move and Change activity	(\$20,000)
- In a full IP phone environment - moves from vendor to a self-service model	
Total Annual Savings Opportunities	(\$35,000)
NOTE: SIP Trunking - Centralized trunking to 2 central sites	
- Replacing current PRI trunks and Police –only SIP trunks using a centralized approach reducing costs by 20% annually. Note that Broadview (PRIs) and Verizon (Police SIP Trunks) contracts are up in 2015 and 2016 respectively. May be possible for one vendor to buy-out the other early, or possible 3rd party	
	(\$85,000)

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Recommendations

- Recommend moving to next phase, Procurement, for a possible replacement/ upgrade
- Consider models available
 - Centralized
 - Decentralized
 - Upgrade as is
 - Cloud model alternate
- New solutions to be added included with the above estimates
 - Call Centers for IT Help Desk (estimated at 12 users, including Call Center Set, CTI screen pops, Supervisor Terminals, Wallboards, Reporting Package, Interactive Voice Response (basic), Call Recording
 - Unified Communications (IM/Chat, Presence, IP audio conferencing, IP video conferencing, Web integration, Document sharing, e-mail integration, mobility integration)
 - One number 'follow me' reach
 - Ability to add extensions 'virtually' for Board staff, Police, others

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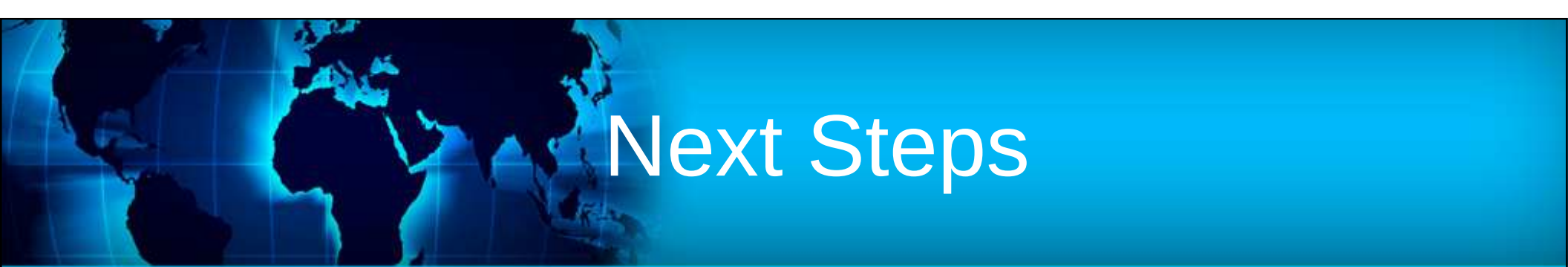
Recommendations

- Temper costs leveraging savings
 - (estimated at \$35,000 annually)
- Leverage 3rd Party Phybridge solution to support reuse of CAT3 cabling for VoIP phones
 - Estimated at \$127,000 including all digital/IP end points/phones
 - This network will run independently from the current Local Area Network which does not support a Voice over IP solution



Timeline (Est.)

#	ITEM AND DESCRIPTION	EST. DATES
1	Site and Network Readiness	Sept 2013 - Nov 2013
	- Review closets, data switches/routers, and Wide Area Network (WAN) redundancy	
2	Procurement Phase	Oct 2013 - Feb/Mar 2014
	- RFP development and issuance	
	- Vendor procurement process - Bidders Conference, Proposals Review, Short List, Final Vendor Selection	
	- Greenwich BET approval	
	- Contract review and approval	
3	Implementation	
	<i>Phase One - Telephony (Migrate current systems to new platform)</i>	Mar 2014 - 3rd/4th Q 2014
	- Project planning, system ordering, site preparation	
	- Coordinate network readiness upgrades as required (closets, switches/routers, WAN)	
	- Core(s) implementation, training, initial sites	
	- Remote site implementations and turn up	
	<i>Phase Two - UCC (introduce new Unified Comm. Tools to Greenwich)</i>	3rd/4th Q 2014 - 1st Q 2015
	- Review environment for UCC applications and use cases	
	- Include IM/chat, softphones, Unified Messaging, presence/friends lists, audio and video conferencing, documents sharing, one number reach	
	- Project planning, training	
	- Group testbed implementation and feedback	
	- Implement UCC to rest of community	

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Next Steps

- Review this document with Town of Greenwich management for brainstorming and next step purposes
- Obtain approval on direction the Town of Greenwich wants to move towards based on recommendations within
- Consider Avaya upgrade or replacement with Avaya or competitor to fully support End-of-Support issues
- Add new currently available features and functionality available in the market to support Greenwich needs and interests
 - Call Centers
 - Unified Communications (UC)
 - Mobility integration
 - Softphones for off site staffing and affiliates
 - Video tied in with UC above

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Report Details

A stylized world map with a blue grid overlay. The map is rendered in a dark blue silhouette against a lighter blue background with a grid of latitude and longitude lines. The word "Background" is written in white text in the lower-left quadrant.

Background

A blue-tinted world map is visible in the background of the top section of the slide, showing the continents of North and South America.

Background

- Town of Greenwich CT (Greenwich), founded in 1640, is a municipal government located in Southeastern Fairfield County, CT with approximately 1,700 phones.
- Various departments support the Town's various needs including:
 - Town Hall
 - Police
 - Library
 - Nathaniel Witherell Skilled Nursing Facility
 - Other areas
 - Parks and Recreation, Human Resources, Health, Social Services
 - Land Use
 - Public Works, Board of Education
- The Board of Education currently runs a Mitel Telephony system that is separate and distinct from the Town

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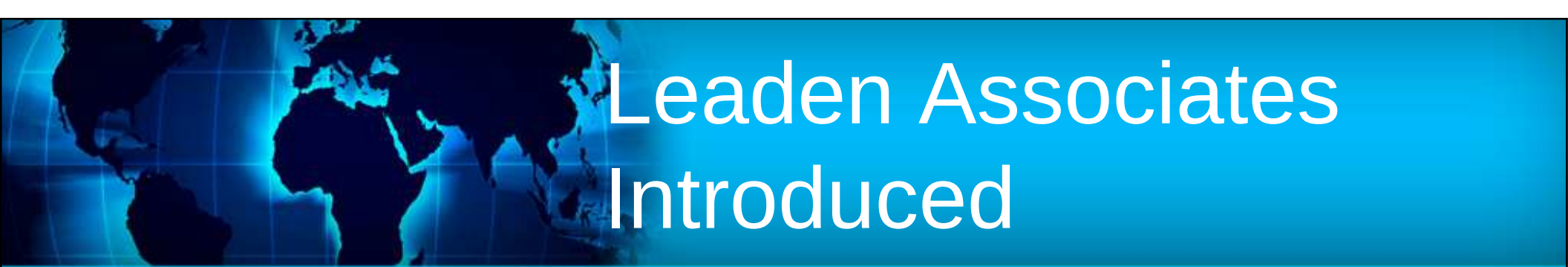
Background

- The Town of Greenwich has 4 main Telephone systems, all Avaya (manufacturer):
 - Town Hall system – Avaya S8720
 - Police Department – Avaya S8730
 - The Library system – Avaya S8500
 - Nathaniel Witherell (Skilled Nursing Facility) – Avaya S8500
- Other smaller telephony systems exist for smaller sites, including
 - Avaya Partner (14 systems)
 - Avaya IP Office (3 systems)
 - Nortel Norstar (2 systems)

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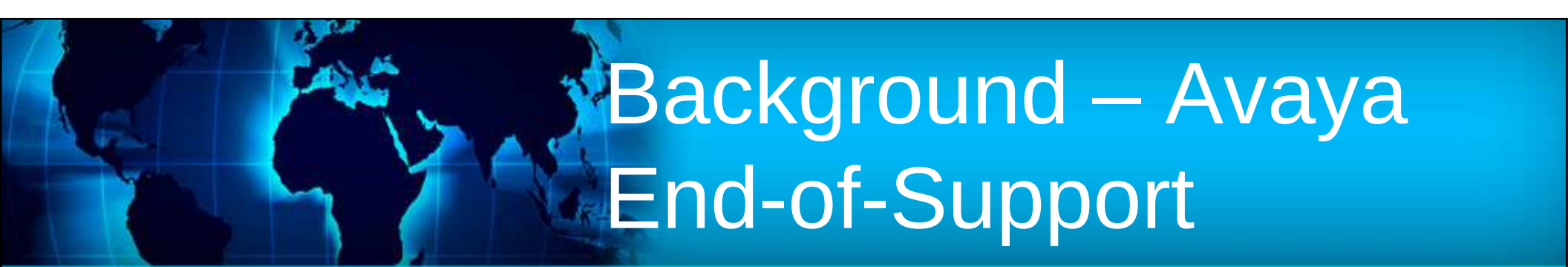
Background

- Service is performed for most Avaya-related equipment by Town of Greenwich Purchasing Department
- We understand that there are 4 distinct entities and separate telephony systems
 - Town Hall system
 - Police Department
 - The Library system
 - Nathaniel Witherell (Skilled Nursing Facility)

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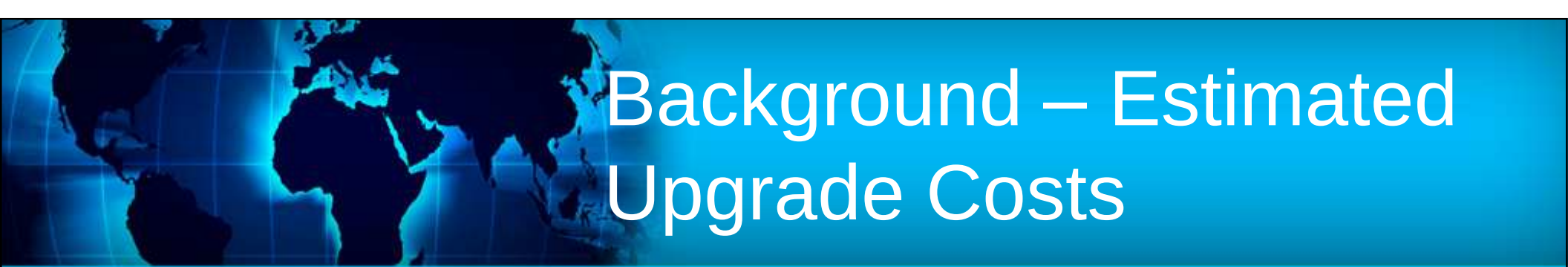
Leaden Associates Introduced

- To take an independent look at the current pending Avaya costs and take a holistic look at the Greenwich telephony environment
- Consider use of the existing Lightpath Wide Area Network (WAN) and Local Area Networks (LANs)
- Research End-of-Support issues
- Validate current cost estimates (and any additional costs) from Avaya
- Develop budgetary costs for possible replacement costs
 - Centralized model
 - Decentralized (current) model
 - Cloud based model
- Consider value-add areas to help manage additional costs

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Background – Avaya End-of-Support

- Avaya has announced most Town of Greenwich Telephony products at End-of-Life
- End-of-Support risks associated with possible extended outages, less technicians to service, less parts support
- Currently an End-of-Support letter has been issued by Avaya for Town Hall, Library, and Nathaniel Witherell as of July 15, 2013
 - FCC will provide additional support for the next 12 months for software subscription support in addition to maintenance for \$10,000

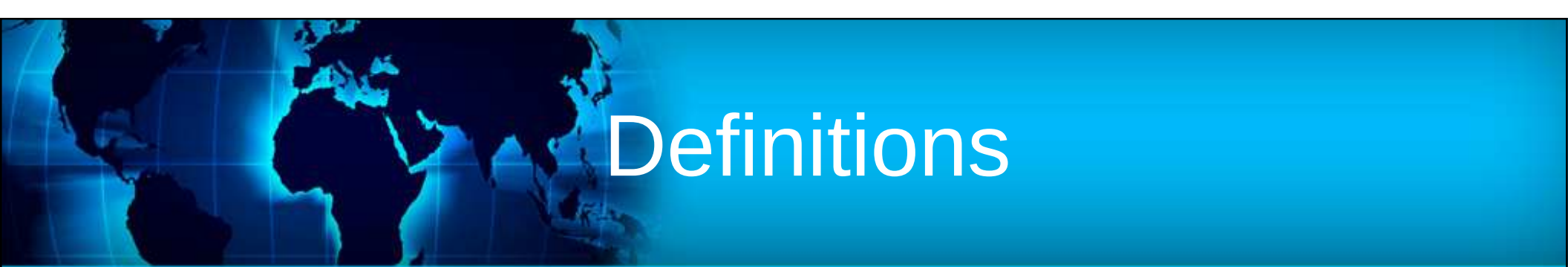
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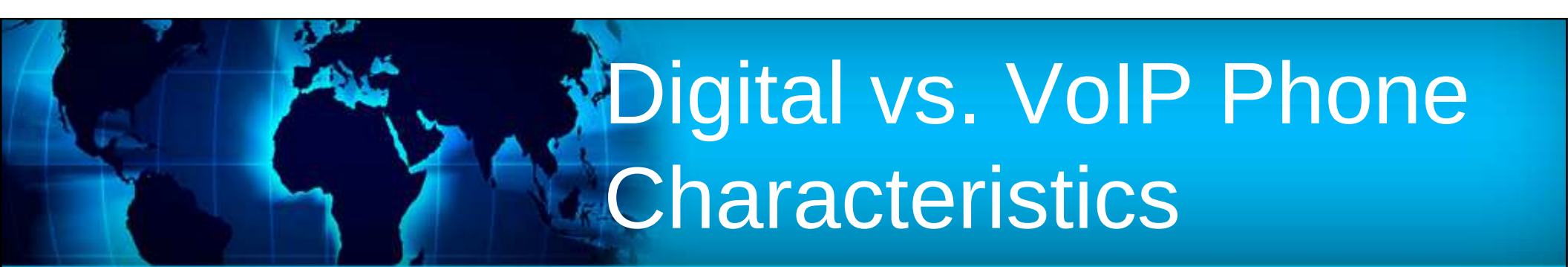


Definitions Market and Technology Trends

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Definitions

- VoIP – Voice over Internet Protocol
 - Enables telephone communications to be routed over data networks—whether internal or external to Greenwich's networks
- UC – Unified Communications
 - “Communications integrated to optimize business processes”
 - Commonly integrates Voice calls, IM/chat, presence (friends lists), softphones, ad-hoc audio conferencing, ad-hoc videoconferencing, white boarding, document sharing, Unified messaging (integrating voicemail, e-mail, SMS and fax) and integration with Call/Contact Center functionality.
 - Provides a consistent unified user interface and user experience across multiple devices and media types



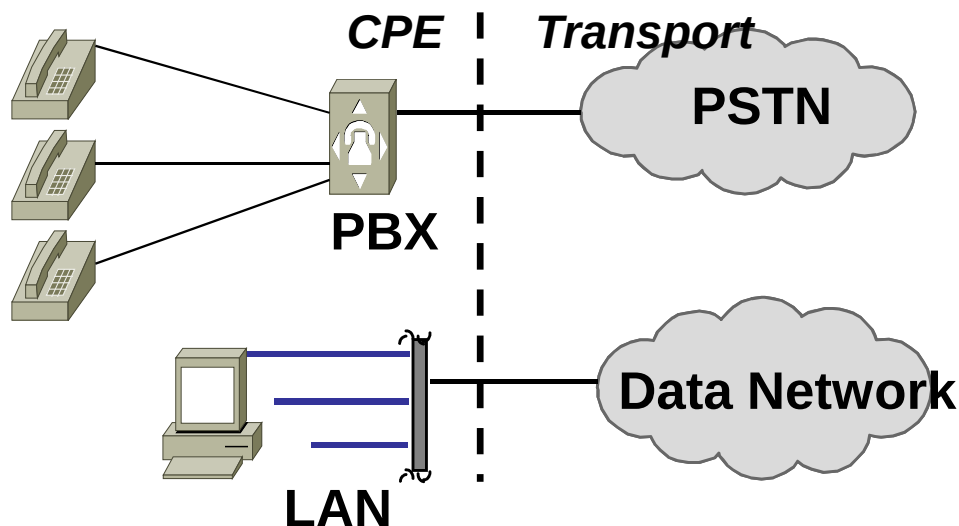
Digital vs. VoIP Phone Characteristics

#	Characteristic	Digital Phone	VoIP Phone
1	Signaling	Uses proprietary digital signaling	Use IP signaling (open)
2	Cabling	Uses legacy CAT3 voice cabling	Uses CAT5, CAT5e, or CAT6 data cabling (or 3rd party hardware to reuse CAT3 voice cabling)
3	Connection	Connects over voice wiring back to digital phone system (PBX)	Connects via a data network (Local Area network/LAN –in-building) or Wide Area Network/WAN – inter-building)
4	Power Source	Power from Digital PBX	Power from a local 'PoE' data switch in a local data closet
5	Distance Limit	5,000' distance limit	300' distance limit (same as PCs)

Analog – in either environment analog phones can be used public areas, fax machines)

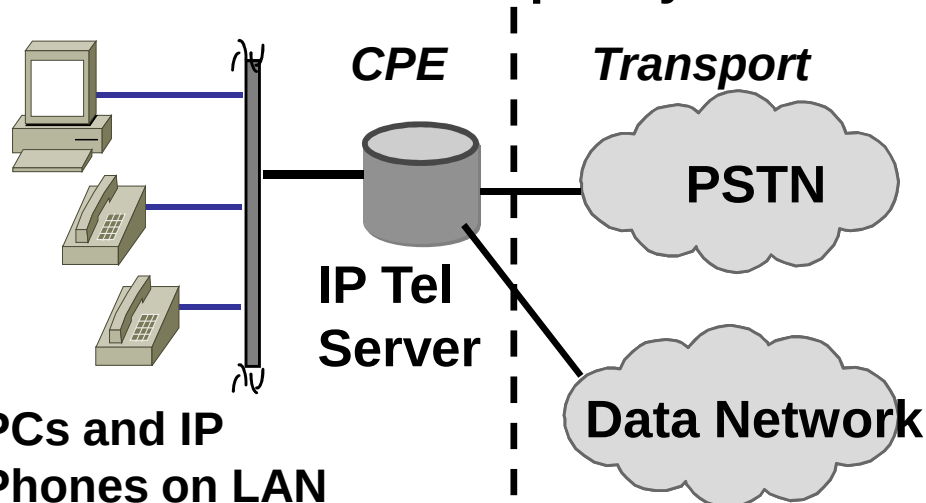
Digital Phone vs. IP Phone

Traditional Customer Voice and Data Installation



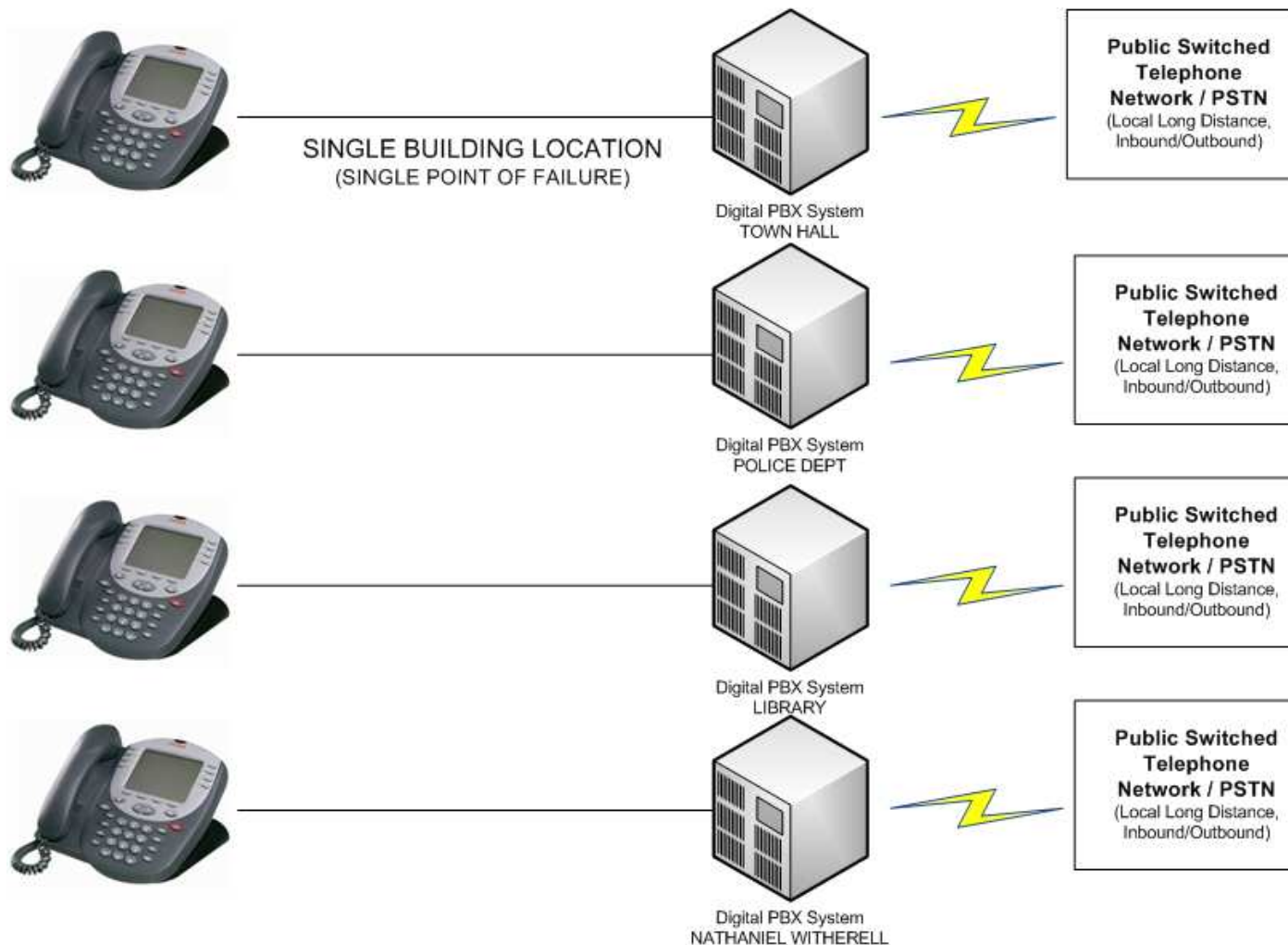
- Uses proprietary digital signaling
- Uses legacy CAT3 voice cabling
- Connects over voice wiring back to digital phone system (PBX)
- 5,000' distance limit
- Power from digital PBX

IP Telephony Voice and Data Installation



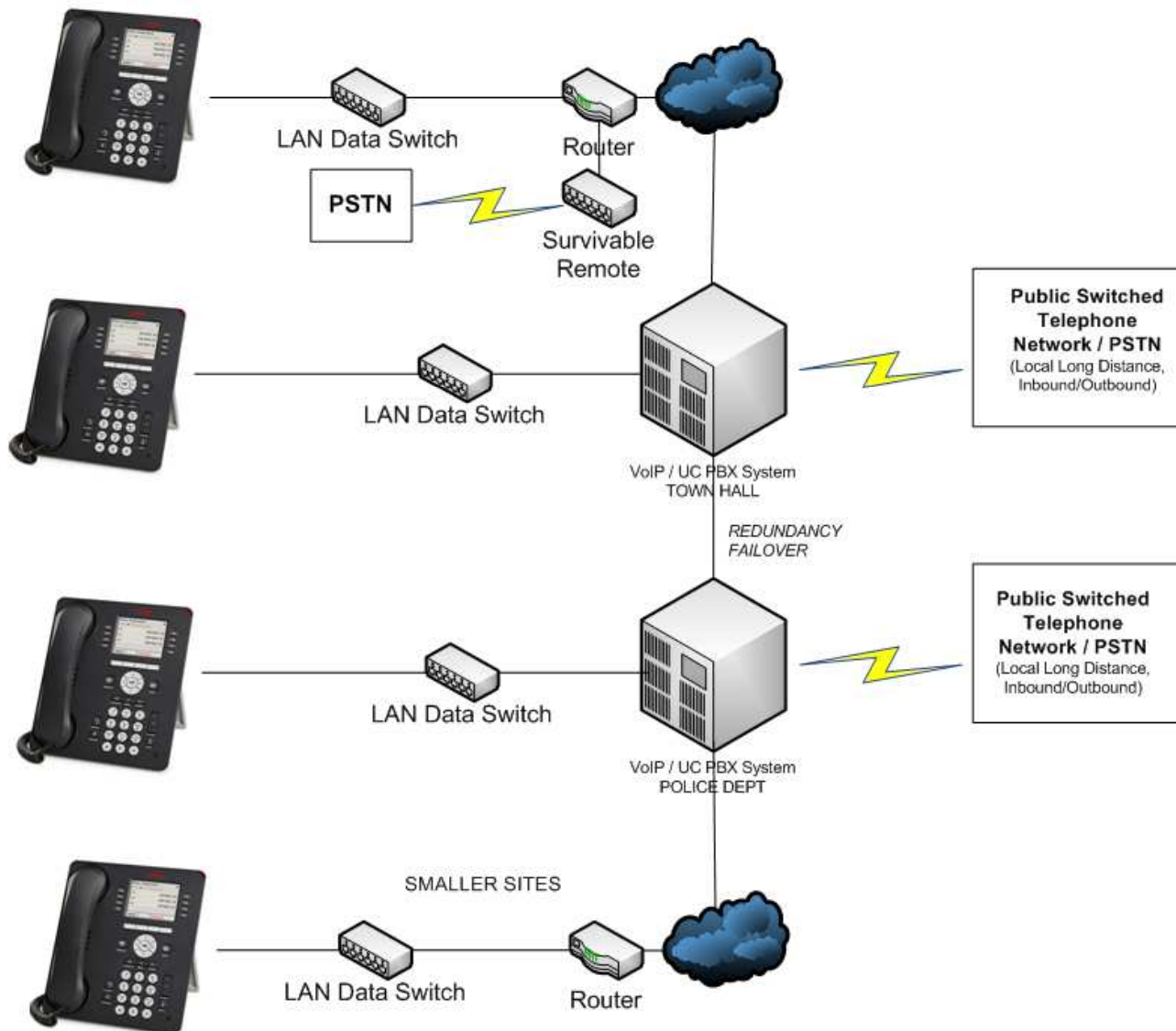
- Use IP signaling (open)
- Uses CAT5, CAT5e, or CAT6 data cabling (or 3rd party hardware to reuse CAT3 voice cabling)
- Connects via a data network (LAN – in-building) or WAN – inter-building)
- Power from a local 'PoE' data switch in a local data closet

Decentralized Network (Current)



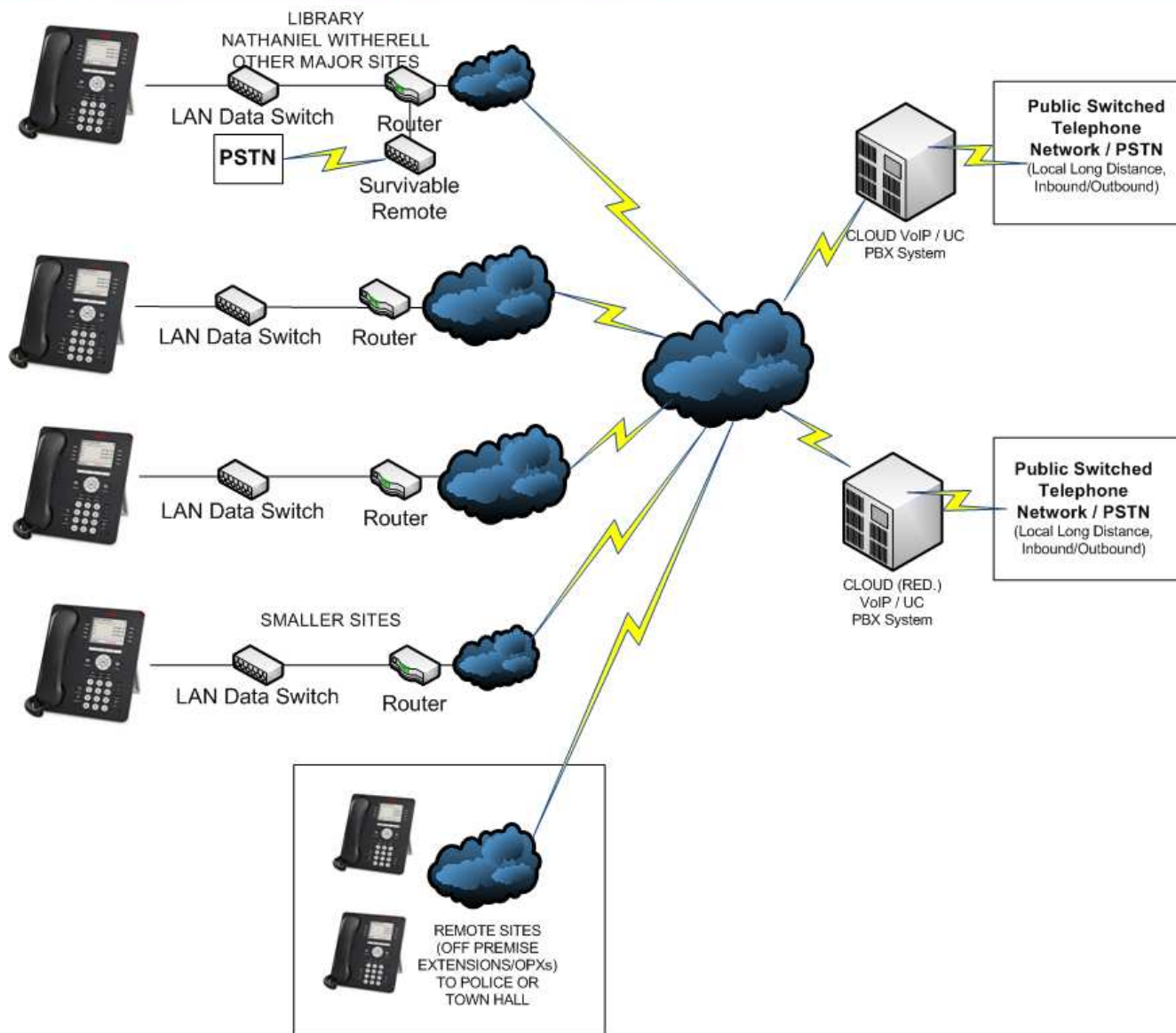
- . Each site is stand-alone
- . Single point of failure at each site
- . Separate trunking each site
- . Less economical
- . Less redundancy

Centralized Network

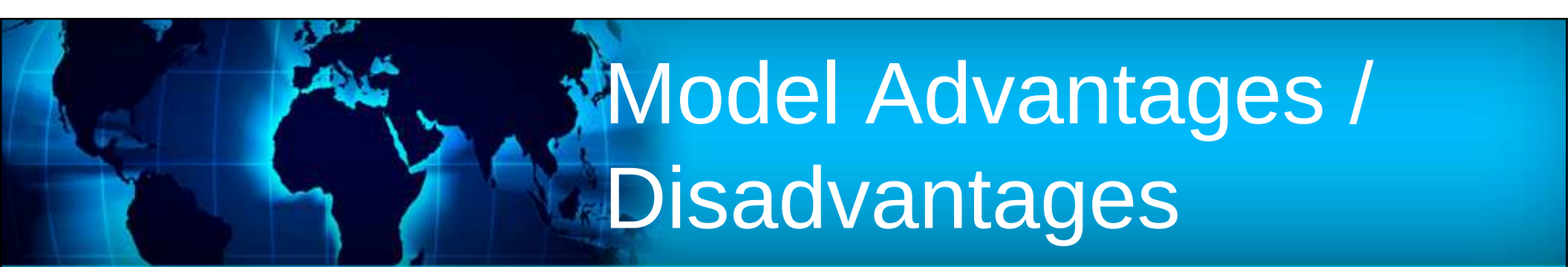


- . Each site connects to core system
- . Redundant
- . Centralized trunking (PRI, SIP)
- . Redundant WAN for all critical sites

Cloud Model

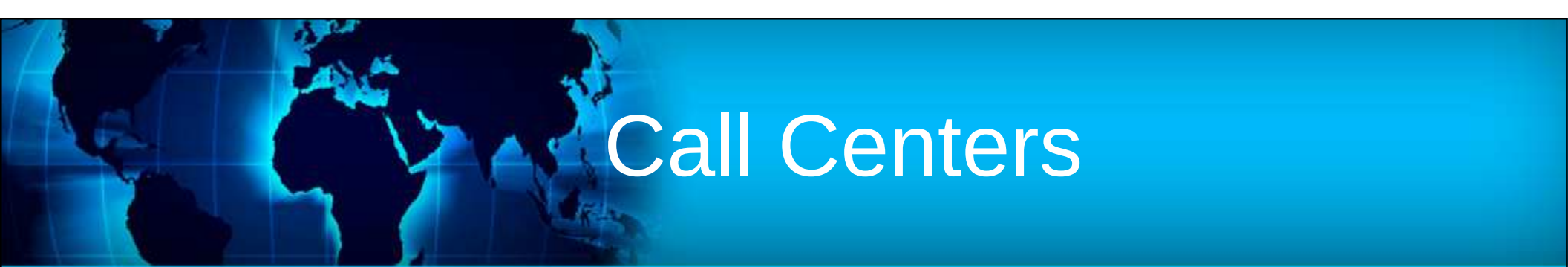


- . Each site connects to cloud as a remote site
- . Redundant in cloud
- . Redundant WAN for all critical sites



Model Advantages / Disadvantages

	Centralized	Decentralized	Cloud
Advantages	Full Redundancy at 2 core servers and location diversity	Keeps with Greenwich decentralized PBX Telephone system model	Lowest up front capital cost, moves capital to Operations costs
	Lowest cost of 3 options	Lower cost than cloud option	Quicker implementation cycle (system already built by provider)
Disadvantages	Initial higher cost than cloud	Higher risk than centralized - no geographic redundancy, site is a single point of failure	Highest over 7 year TCO
	Requires internal cost allocation	Higher costs than centralized, and longer term may add other 'hidden' licensing, server costs	All eggs-in-one-basket approach, higher dependency on outside vendor, many times requires WAN migration to cloud provider



Call Centers

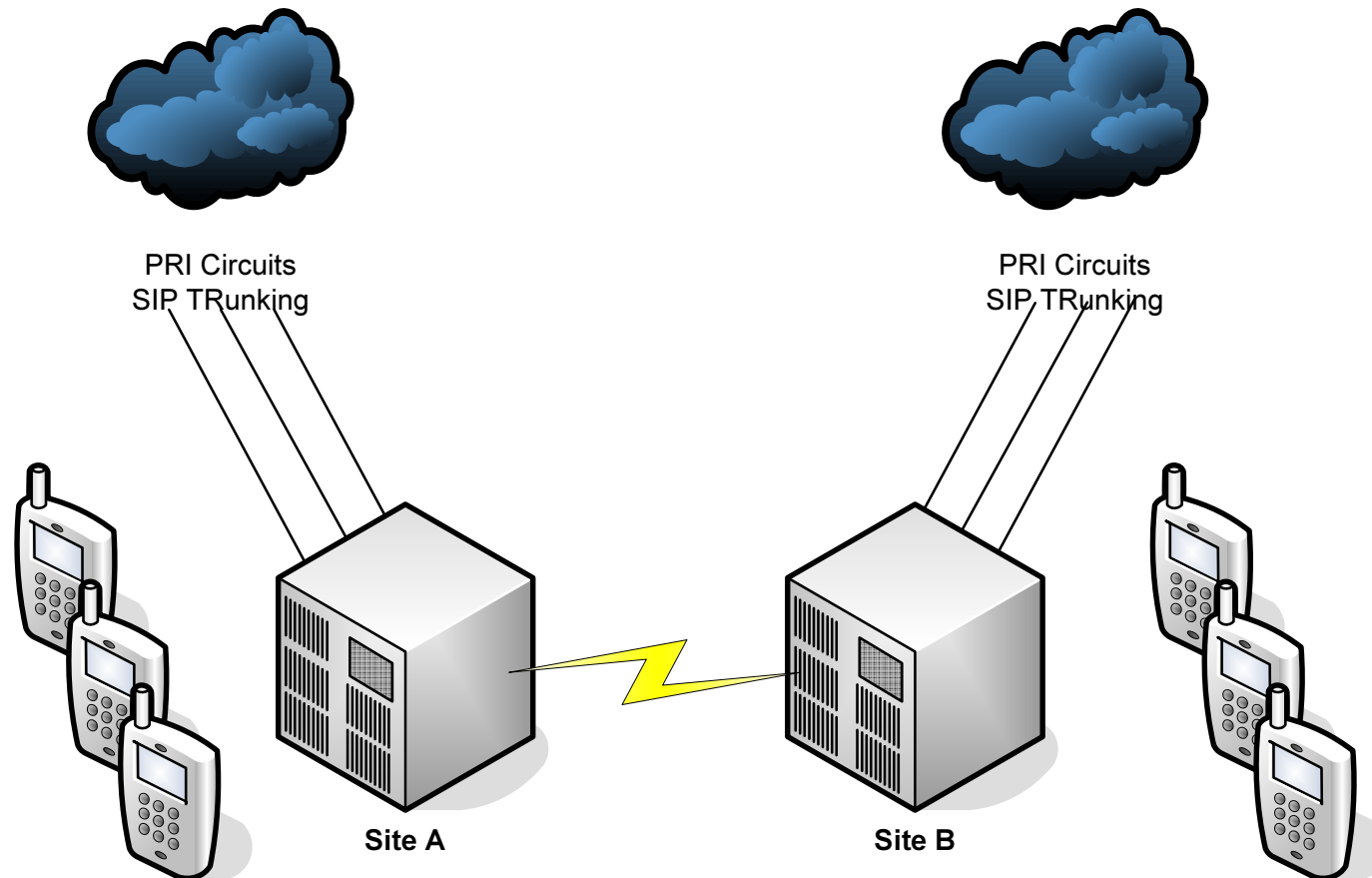
- Provides “front line” services or sales utilizing a distributed inbound or outbound call environment
 - Inbound - to administer incoming customer service, product support, or information inquiries
 - Outbound - for telemarketing, charitable donations, debt collection and market research
- Today’s Call Centers include
 - E-mail
 - Web chat
 - SLAs for measuring group success, surveys, other tools
- Call Routing (universal, skills based)
- Interactive Voice Response (IVR)
- CTI “Screen Pop”
- Call Recording
- Web Chat
- E-mail, Chat, Text, Social Media “calls”
- Remote Worker option

We recommend implementing Call Centers, common in municipalities, for IT Help Desk (est. 12 Call Center phones/seats)
- Estimates included for a new system option

Telephony and UCC Features Available In Today's Market

- Unified Messaging
 - Email, Voice, Fax in Inbox
 - Unified Communications
 - IM/chat, Presence, Audio conferencing, Videoconferencing, doc sharing, whiteboarding, MS Exchange/Google integration, softphone
 - Mobility
 - (One number reach, UCC integration)
 - Remote Workers
 - (softphone, hardphone)
 - Emergency Notification
 - Centralized Network Management
- Centralized Voice Mail
 - Call Recording
 - Record Threatening Phone Calls
 - Disaster Recovery
 - Wireless LAN/phones – 802.11x / FMC
 - Call Accounting
 - Corporate Directory
 - Caller ID
 - Virtual Office (Hoteling)
 - Improved Call Center components
 - Skills Based Routing, Reporting
 - Social Media, Speech Analytics
 - IVR, Call Recording, Scheduled Callbacks, improved SLAs

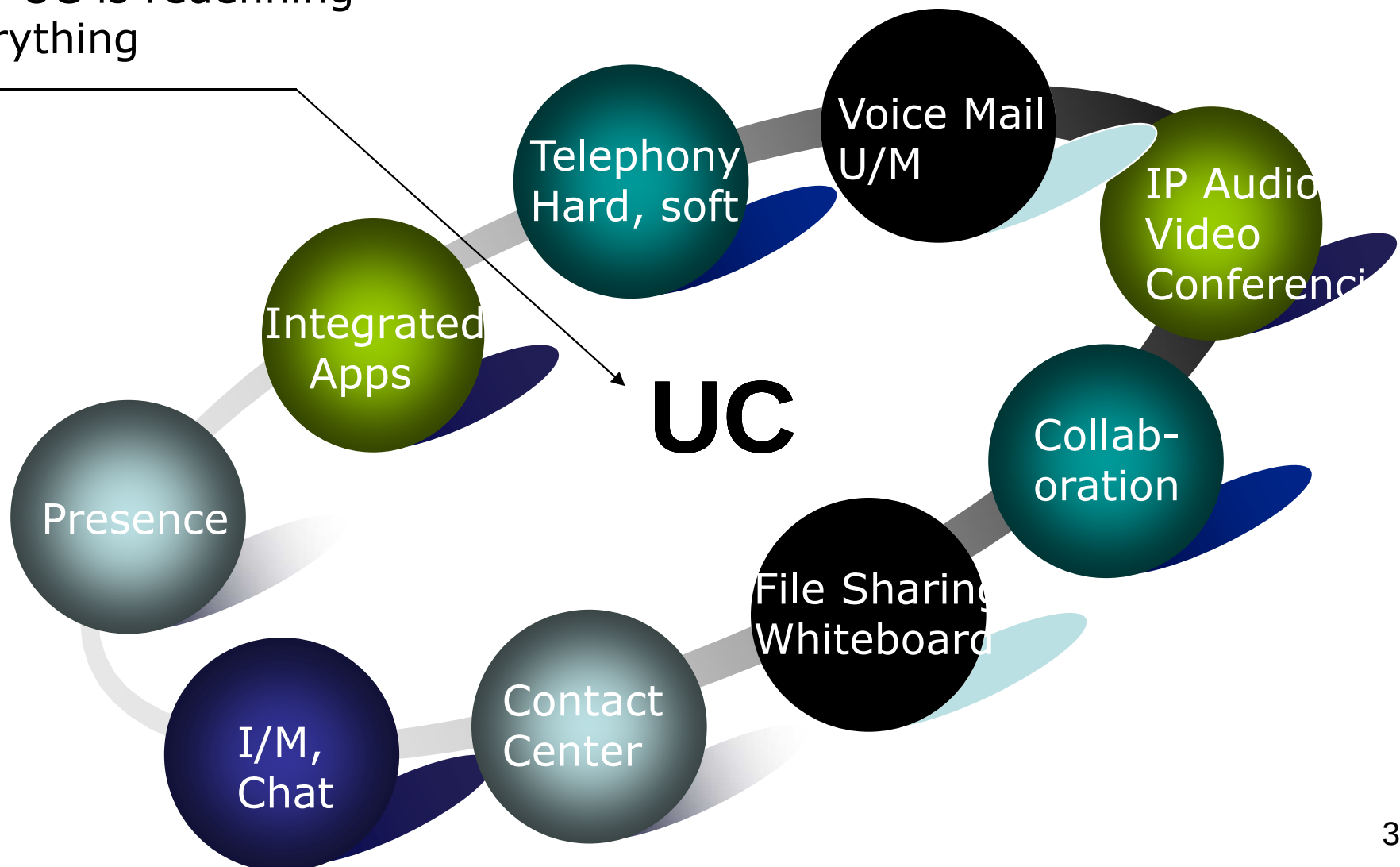
Disaster Recovery Model



Disaster Recovery
Function – VoIP
Phones re-register to
second system if one
system fails

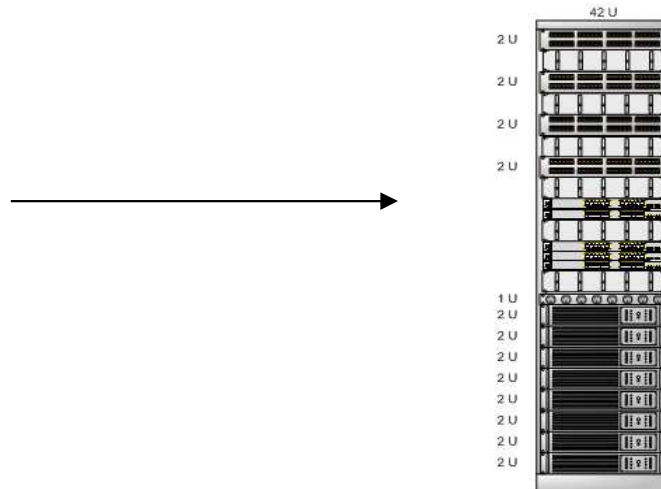
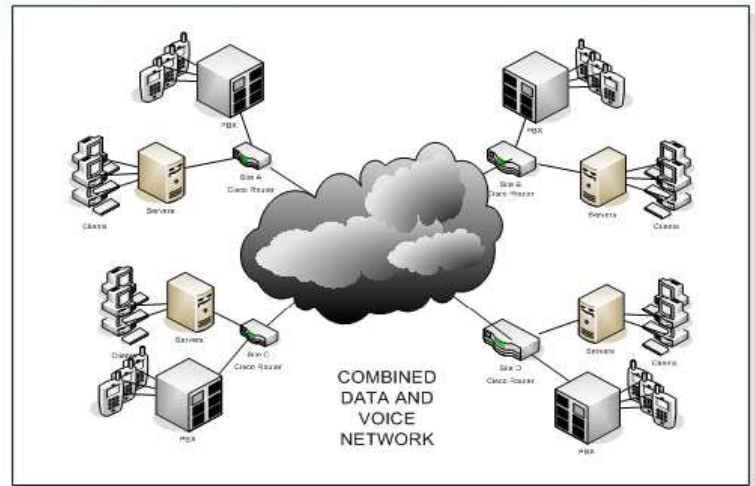
Unified Communications Model (latest)

How UC is redefining everything



VOIP and UCC Touches Everything

- Telephones
- Routers
- Data networks
- Network management tools
- Voice servers
- Data servers
- Data Closets
 - UPSs
 - Data Switches
 - HVAC, electrical, space requirements



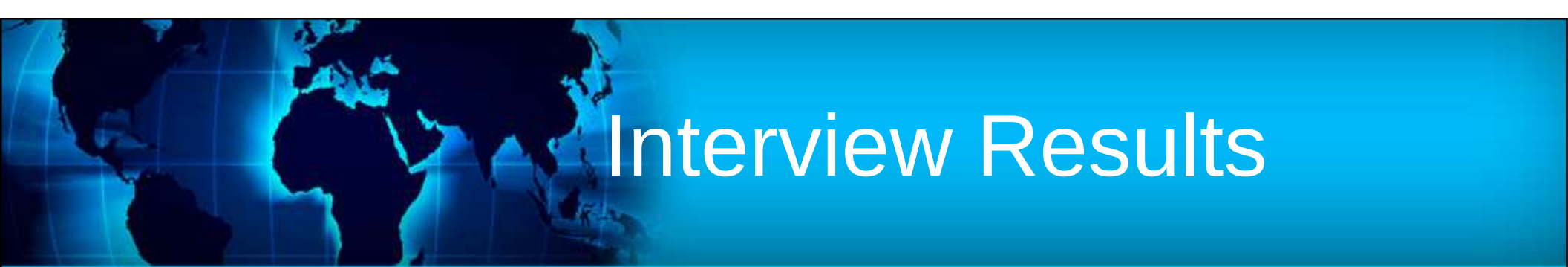
A dark blue world map with a glowing grid of latitude and longitude lines. The map is centered on the Atlantic Ocean, showing the continents of North America, South America, Europe, Africa, Asia, and Australia. The text "Interview Results" is overlaid in white on the lower left portion of the map.

Interview Results

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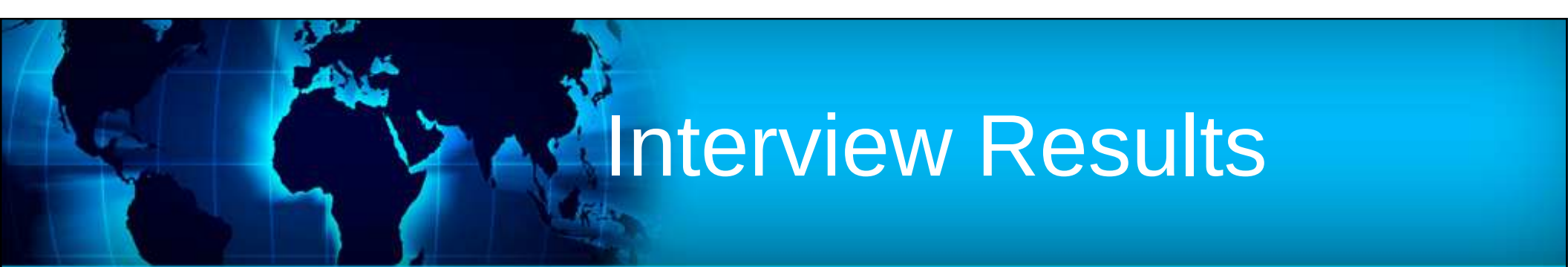
Interviews

- Interviews held with the following Town of Greenwich departments
 - Purchasing
 - IT
 - Library
 - Police
 - Nathaniel Witherell
 - First Selectman's Office
 - Finance
 - Special Projects Coordinator
 - Board of Ed IT

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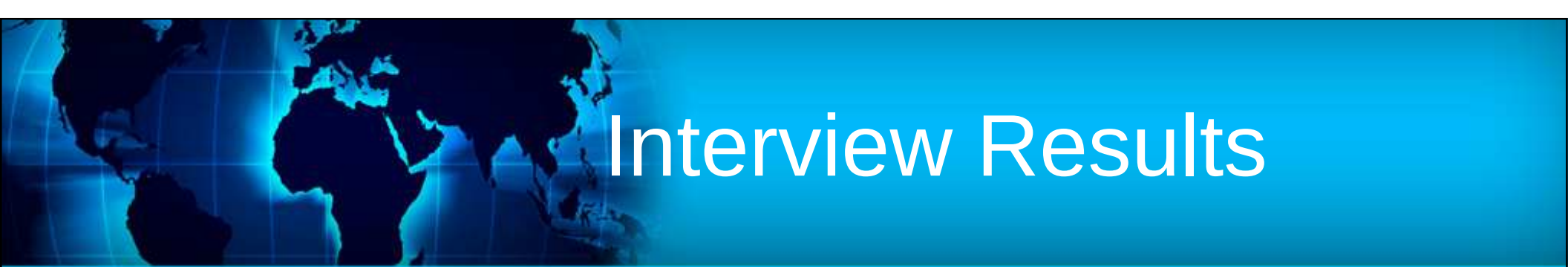
Interview Results

- Current Local Area Network is *not* capable of supporting VoIP throughout all of the Town of Greenwich
 - Requires QoS-enabled or Power over Ethernet capable data switches
- IT Department does currently support Voice over IP traffic via the Lightpath Wide Area Network traffic
 - No QoS currently on network, but high availability and low latency compensate
- Current Avaya systems in place are End-of-Support among all Greenwich sites (end of hardware support)
 - 2 Octel voice mail systems at Nathaniel Witherell and the Library also at End-of-Support (2014 expect more serious voice mail issues)
- Nathaniel Witherell in the process of replacing all outside Verizon POTS lines with internal extensions in patient rooms only as a part of its expansion effort
- 4 digit dialing critical to connecting all 4 major sites (Town Hall, Police, Library, Nathaniel Witherell) and Fire Stations
 - Currently not available to other Town sites (19 total)

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Interview Results

- Maintenance for Avaya systems provided by Fairfield County Communications (FCC)
- Also support from 3rd party companies
 - Octel voice mail (Nathaniel Witherell, Library) – Business Electronics/BEI
 - Redsky E911
- Current Redsky E911 system announced as manufacturer discontinued and requires an upgrade (costs enclosed) (as is current Avaya)
- Some redundancy currently available in current environment (Police) and should be considered for Library, Nathaniel Witherell, and The Town systems

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Interview Results

- IT Office support VoIP over the Lightpath WAN (inter-building)
 - Does not support VoIP/IP phones within a site (intra-building)
 - Third party solutions are available to manage IP phone traffic utilizing existing CAT3 cabling
- Generally good history with Fairfield County Communications
 - Especially service responsive
- Using Broadview (PRIs) and Verizon (SIP trunking) for all inbound/outbound calling for Greenwich
 - New 2 year agreement recently signed with Broadview, and 3 year agreement with Verizon (expire in 2015 and 2016)
 - Possibility of migrating to SIP trunking and reducing current annual costs by up to 20-30% if option available from Broadview or Verizon

A stylized world map in shades of blue and black, showing the continents. It is positioned on the left side of the slide, behind the title.

Interview Results – Interest Areas

- Interest adding up to 500-600 individuals affiliated with the Town using **softphones** for off-site extension access
- Interest from Police adding extensions as **softphones** to current PCs in Police vehicles
- Police Department open to a **centralized approach** (one single redundant and resilient voice infrastructure)
- Emergency Notification provided through cloud-based Everbridge service
 - (no change proposed for Emergency Notification)

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Interview Results — Interest Areas

- Considering **Video Conferencing** among sites
 - Skype currently used by Library staff
- Would like to see **Unified Messaging** for staff (one Inbox for E-mail, Voice mail, Faxing)
- Would like to see **IM/chat, presence (friends lists), document sharing** internally for collaboration purposes
- **Virtual Office** feature powerful for traveling and ‘virtual’ staff
- **Softphones** would connect all Board and part time executive staff remotely and allow connecting via voice mail and voice mail broadcast messaging
- Consideration for **centralizing** all sites via one centralized solution for all Town entities
- Centralized, single **Active Directory** in phones would be advantageous
 - Dial anyone via phone lookup
 - Current directories multiple data entries and out-of-date



Findings General

- Systems are at End-of-Support and at high risk to the Town of Greenwich
- Currently Town of Greenwich cannot take advantage of new technologies available to align with municipal goals with existing infrastructure
- Upgrade or replacement costs will range from \$715,936 - \$1,425,318
(by end of 2015 add phones for a range of **\$1,131,376 - \$1,425,318**)
- Call Accounting
 - Native TapIt Call Accounting - requires an upgrade of \$3,586
 - Currently resides on a virtual server in IT
 - Goes out of service during maintenance windows and must be manually reset at those times, losing valuable data
- Greenwich annual Move and Change costs (est. \$20,000)
 - Can be reduced with a VoIP-based solution – no longer requiring an outside technician

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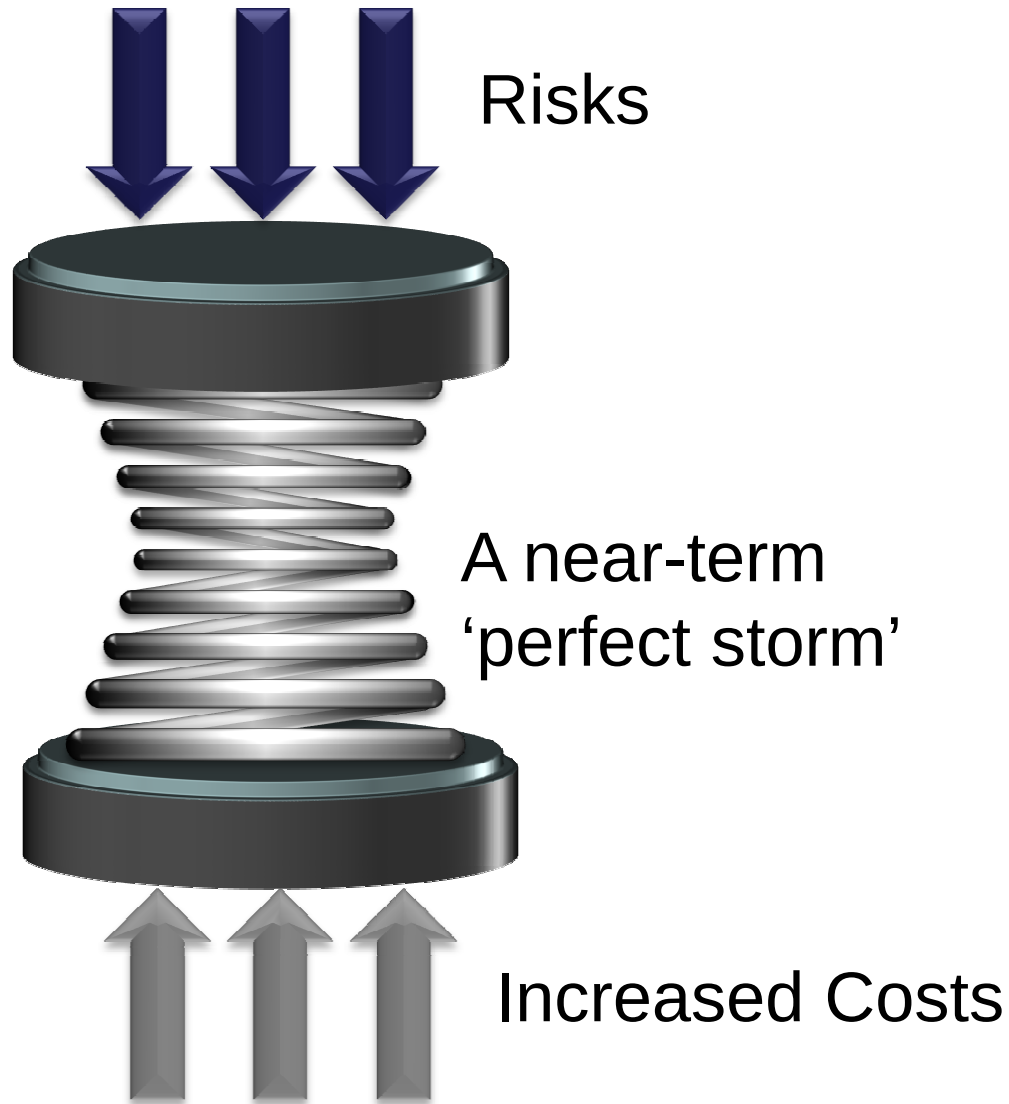
Findings – Interest Areas

- The Avaya system needs to be upgraded/replaced to support features and functionality available
 - Corporate Directory –
 - Can use Corporate Directory for all offices within any IP phone
 - Virtual Office
 - (for visitors from other offices – phone takes on attributes of visitor's native phone when at a different site)
 - Disaster Recovery –
 - 2nd site (Police/Town Hall as primary site and Nathaniel Witherell as possible secondary site based on geographic distance) can be a redundant failover site in the event of a hard system down at primary site
 - Follow Me –
 - Publish one number for phone, fax, cell phone (currently Avaya EC500)
 - Unified Communications-
 - Commonly integrates Voice calls, IM/chat, presence (friends lists), softphones, ad-hoc audio conferencing, ad-hoc videoconferencing, white boarding, document sharing, Unified messaging (integrating voicemail, e-mail, SMS and fax) and integration with Call/Contact Center functionality
 - Call Centers
 - For IT Help Desk area
 - Remote Workers –
 - “Softphones” (application on laptop) can have all phone attributes working off site

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Risks with Staying at Current Systems Release

Risk Issues – Summary



- System End-of-Support (EoS) Capacity Issues
- Legacy telephony systems manufacturer discontinued
- Consumer-driven technologies ahead of commercial space
- Fewer Trained Resources
- Systems Age
- Risk of a Multi-Day Outage Increases
- Newer systems added onto older system to solve capacity issues
- Good Money after 'Bad'

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Market/System Risk Issues

- **System End-of-Life**
 - Manufacturer announces End-of-Support of Telephony system
 - Spare parts are refurbished and are increasingly becoming less available, maintenance contract support may be an issue, costs may be a major issue
- **Capacity Issues with Current Systems and Associated Costs**
 - Systems at capacity require additional hardware investment, and some increases by as much as 40% of a new system (Nathaniel Witherell and Library Voice Mail systems have capacity issues)
- **No Investment by Telecom Manufacturers in Legacy Voice systems**
- **Consumer-Driven Capabilities Moving into the Enterprise**
 - Reach-me-anytime, e-mail, IM/chat, presence, personal directories, all consumer driven technologies, are now available in the commercial space

A blue-toned world map is visible in the background of the top header section.

Market/System Risk Issues

- **Fewer Trained Technicians**
 - Knowledge base 'how to fix' has eroded significantly
 - Difficult to find vacation, sick replacements
- **Systems Age (7 years or more as a baseline)**
 - A clear indication of the deterioration of support for parts and technicians
 - Expect manufacturer notices, spare parts unavailability, upgrade unavailability, and fewer trained technicians over time
- **Risk of a Multi-Day Outage Increases**
 - State of the systems poses greater risk to basic communications services - a single outage could last several days.
 - How would your organization communicate in the event something like this happened?
 - What risk(s) would this pose to the safety of the staff and community?
- **Newer systems added onto older system to solve capacity issues**
 - Creates a more complex maintenance environment
- **Good Money After 'Bad'**
 - Investing in older technology with no going-forward vendor investment = good money after 'bad'

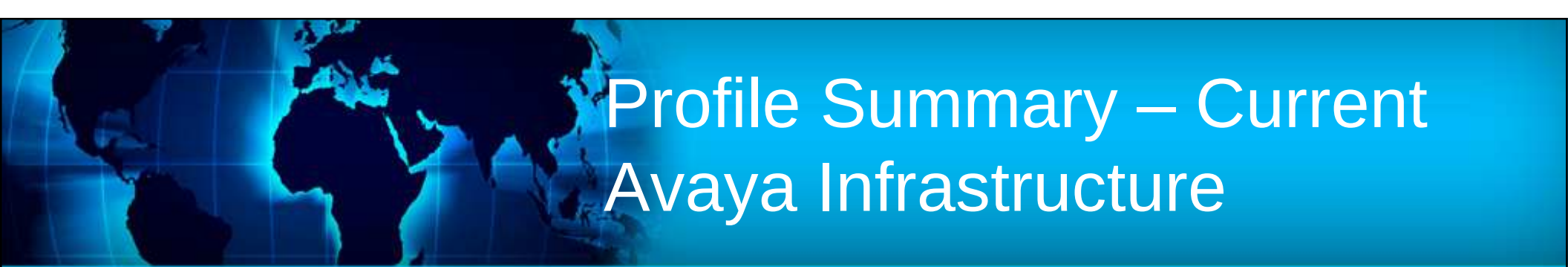
A dark blue world map with a glowing grid of latitude and longitude lines. The map is centered on the Atlantic Ocean, showing the continents of North America, South America, Europe, Africa, Asia, and Australia. The text "Findings Avaya" is overlaid in white on the lower left side of the map.

Findings Avaya

A blue-tinted world map is visible in the background of the top header section.

Findings – Avaya Infrastructure

- Town Hall
 - System has been installed and upgraded for support purposes and 20+ years old, including some of the legacy components
- Avaya currently requires upgrades currently for
 - Town Hall
 - Nathaniel Witherell
 - Library system
- Police Department
 - Will require an upgrade shortly (End-of-Life)
- Proposal estimates from the incumbent vendor Fairfield County Communications (FCC) are significant at **\$351,376**
 - Will require additional charges to get Greenwich currently supported among all sites in next 12-24 months
 - (See costs sheet for a total of **\$715,936**)
- End-of-Support dates provided by Avaya



Profile Summary – Current Avaya Infrastructure

- Town Hall System and Senior Center
 - Avaya S8720, Modular Messaging Voice Mail
 - 524 digital phones, 110 analog phones
- Police Department
 - Avaya S8730 (redundant), Modular Messaging Voice Mail
 - 174 digital/61 IP phones, 120 analog phones
- The Library
 - Avaya S8500, Octel Voice Mail
 - 151 digital phones, 50 analog phones
- Nathaniel Witherell (Skilled Nursing Facility)
 - Avaya S8500, Octel Voice Mail
 - 102 digital phones, 100+200 add'l analog phones
- Other Sites
 - Avaya IP Office and Voice Mail (3 systems)
 - Avaya Partner and Voice Mail (13 systems)
 - Nortel (Avaya) Norstar and Norstar Voice Mail (2 systems)
 - 265 digital phones, 0 analog phones

TOTALS
- 1,216
digital/IP
phones
- 644 analog
phones
Total - 1,860

Avaya End-of-Support Dates – Systems

Loc #	Location	System Type	Software Release	End-of-Support
1	Town Hall	IPO 409	3.2	5/5/11 (HW-406)
2	- Town Hall	Comm.Manager S8720 & G-650	4, R013x.01.2.632.1	8/14/2011 (HW)
3	- Town Hall	Modular Messaging	5	2/21/11 (SW)
4	Main Library	S8500 w/G650	4	12/3/08 (HW) *
4a	- Main Library	Octel 200 8ports x 12.5 hours	S4.1.020	6/30/11 (HW)
5	Nursing Facility	S8500 w/G650	4, R014x.00.1.7312	12/3/08 (HW) *
5a	- Nursing Facility	Octel 200, 4 ports x 5 hours	S4.1.020**	6/30/11 (HW)
6	Police Dept.	S8730/G650	5.2	1/19/13 (HW)
7	- Police Dept.	Modular Messaging	5	2/21/13 (HW)
8	'B' Library	S8300/G250 w/IA770 VM	3.1	5/5/11 (HW)
9	'C' Library	S8300/G250 w/IA770 VM	3.1	5/5/11 (HW)
10	Senior Center	S8300/G350	4	5/5/11 (HW)
11	Water treatment	IP Office Phone System	3.2	8/3/12 (HW)
12	Fleet Dept.	IP Office Phone System	3.2	8/3/12 (HW)
13	'C' Fire Dept.	IPO 403 w/ Voicemail Pro	3.2	8/3/12 (HW)
HW = Hardware *Assumes S8500A **Assumes same release as Library				

Above systems at end of hardware support from Avaya.

Avaya End-of-Support Dates – Systems

Loc #	Location	System Type	Software Release	End-of-Support
14	Marine Division	Partner 509 and Partner Messaging	7	11/7/13 (HW)
15	Animal Control	Partner ACS 509 & Partner Messaging	8	11/7/13 (HW)
16	Dept. of Public Works	Partner ACS & Partner Messaging	8	11/7/13 (HW)
17	Ice Rink	Partner ACS & Partner Messaging	7	11/7/13 (HW)
18	Parks & Trees Dept	Partner ACS & Partner VM	6	11/7/13 (HW)
19	'B' Fire Dept	Partner ACS 509 & Partner Messaging	8	11/7/13 (HW)
20	'G' Fire Dept	Partner ACS 509 & Partner Messaging	8	11/7/13 (HW)
21	Golf Course	Partner ACS 509 w/Partner Messaging	8	11/7/13 (HW)
22	Highway Dept.	Partner ACS 509 & Partner Messaging	7	11/7/13 (HW)
23	Parks & Fields Mtce	Partner ACS 509 & Partner Messaging	8	11/7/13 (HW)
24	The Art Barn	Partner ACS 509 & Partner Messaging	8	11/7/13 (HW)
25	'H' Fire Station	Gateway & Extender	N/A	11/7/13 (HW) (est.)
26	'E' Civic Ctr	Partner ACS Partner ACS PVM 2X4	7	11/7/13 (HW)
27	'W' Civic Ctr	Partner ACS Partner ACS 509 PVM 2X12	7	11/7/13 (HW)

HW = Hardware

*Assumes S8500A

**Assumes same release as Library

Above systems at end of hardware support by 11/7/13.

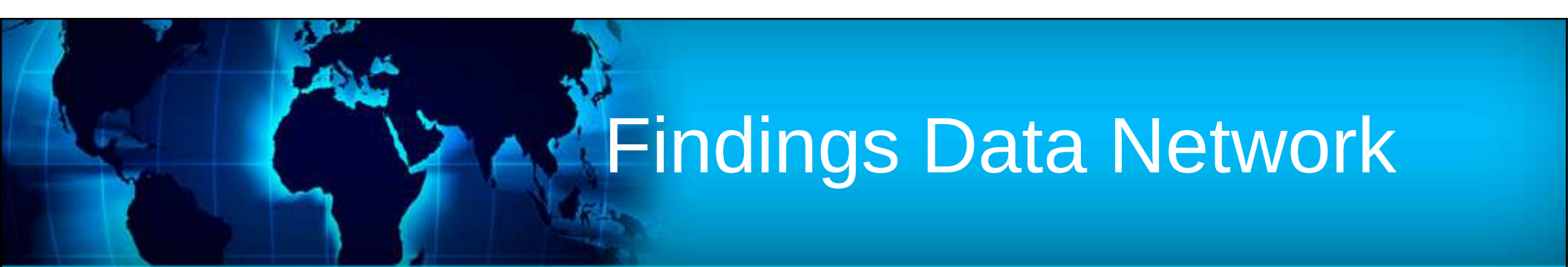
Avaya End-of-Support Dates – Phones

Phone Type	Town Hall	Library	Nathaniel Witherell	Police Dept	Total	End of Sale Date	End of Hardware Support Date
9630 (IP)	--	--	--	30	30	12/3/2012	11/30/2015
9640 (IP)	--	--	--	31	31	12/3/2012	11/30/2015
2420 (Digital)	274	71	41	130	516	12/3/2012	11/30/2015
2410D (Digital)	--	--	--	40	40	12/3/2012	11/30/2015
3631 Wireless	--	--	--	1	1	5/4/2009	3/24/2011
2410 (Digital)	50	--	--	--	50	12/3/2012	11/30/2015
6408 (Digital)	150	70	55	--	275	9/10/2007	3/4/2012 (SSN)
6416 (Digital)	40	10	--	--	50	9/10/2007	3/4/2012 (SSN)
2402 (Digital)	10	--	--	--	10	12/3/2012	11/30/2015

Above systems at end of end point/phone support from Avaya either now or by 11/30/15.

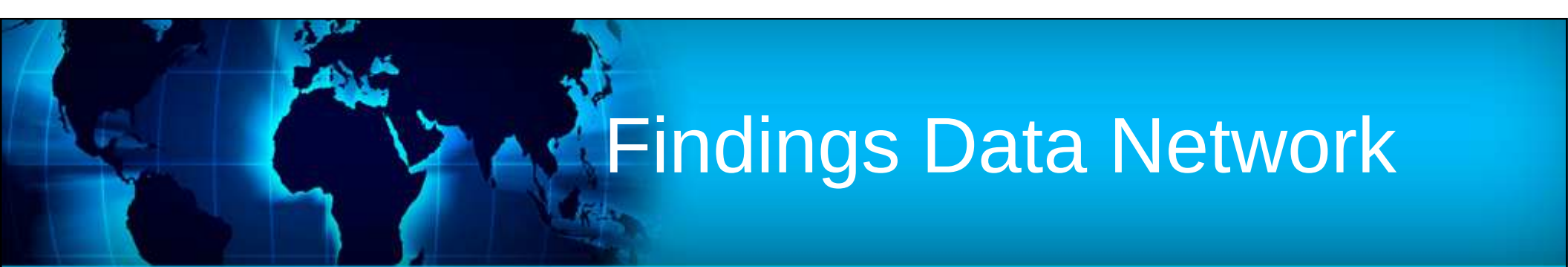
A dark blue world map with a glowing grid of latitude and longitude lines. The map is centered on the Atlantic Ocean, showing the continents of North America, South America, Europe, Africa, Asia, and Australia. The text "Findings Data Network" is overlaid in white at the bottom left.

Findings Data Network

A blue-tinted world map is visible in the background of the top header section, showing the continents of North America, South America, Europe, and Africa.

Findings Data Network

- Current Greenwich's data network is a metro 'Layer 2' Wide Area Network provided by Lightpath
 - A total of 47 Greenwich sites are currently included
 - Most connections are 100Mb to 1Gb and most circuits are under utilized, providing bandwidth for growth
- Currently there is no Quality of Service (QoS) for voice traffic
 - Low latency on the current network and under utilized circuits currently compensate for such
- For a VoIP-enabled data network, data switches will need to be upgraded for Quality of Service (QoS) and Power over Ethernet (PoE) purposes

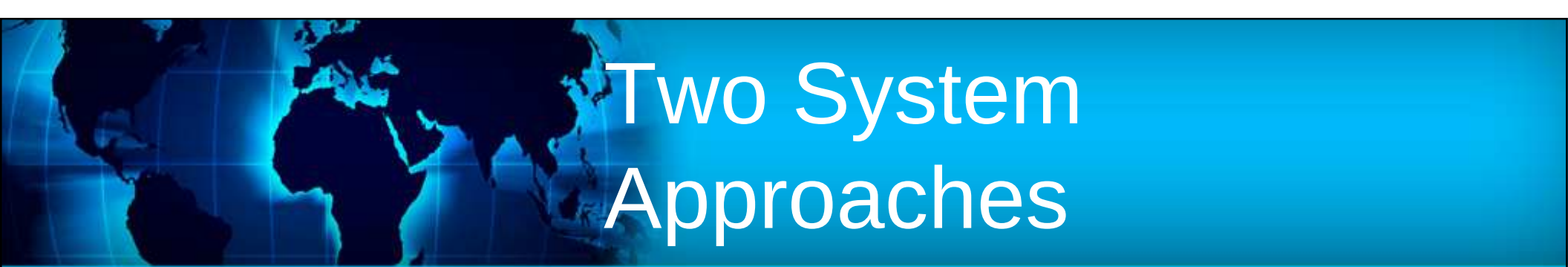
A stylized world map in shades of blue and black, showing the continents. The map is positioned on the left side of the slide, with the title 'Findings Data Network' overlaid on the right side.

Findings Data Network

- Third party solutions such as Phybridge provide a solution reusing existing CAT3 digital phone cable and providing power for a VoIP phones
 - Budgetary cost estimates are \$127,000 to support replacement of all digital phones with IP phones
- Service Level Agreements (SLAs) could be better based on industry defacto standards of 99.9% uptimes
 - Currently Lightpath offers 99.9% for, 99.7%, and 99.44% are available
 - We recommend, for next Lightpath contract renewal (or replacement vendor) that better SLAs be added with stricter penalties for non-performance
- Note that Lightpath historically provides a reliable, fiber-based network
 - Strong SLAs should keep Greenwich on a high priority customer list
- We recommend adding QoS to the current data network for voice and video prioritization purposes



Model Descriptions and Diagrams

A blue-tinted world map is visible in the background of the top section of the slide, showing the continents of North and South America.

Two System Approaches

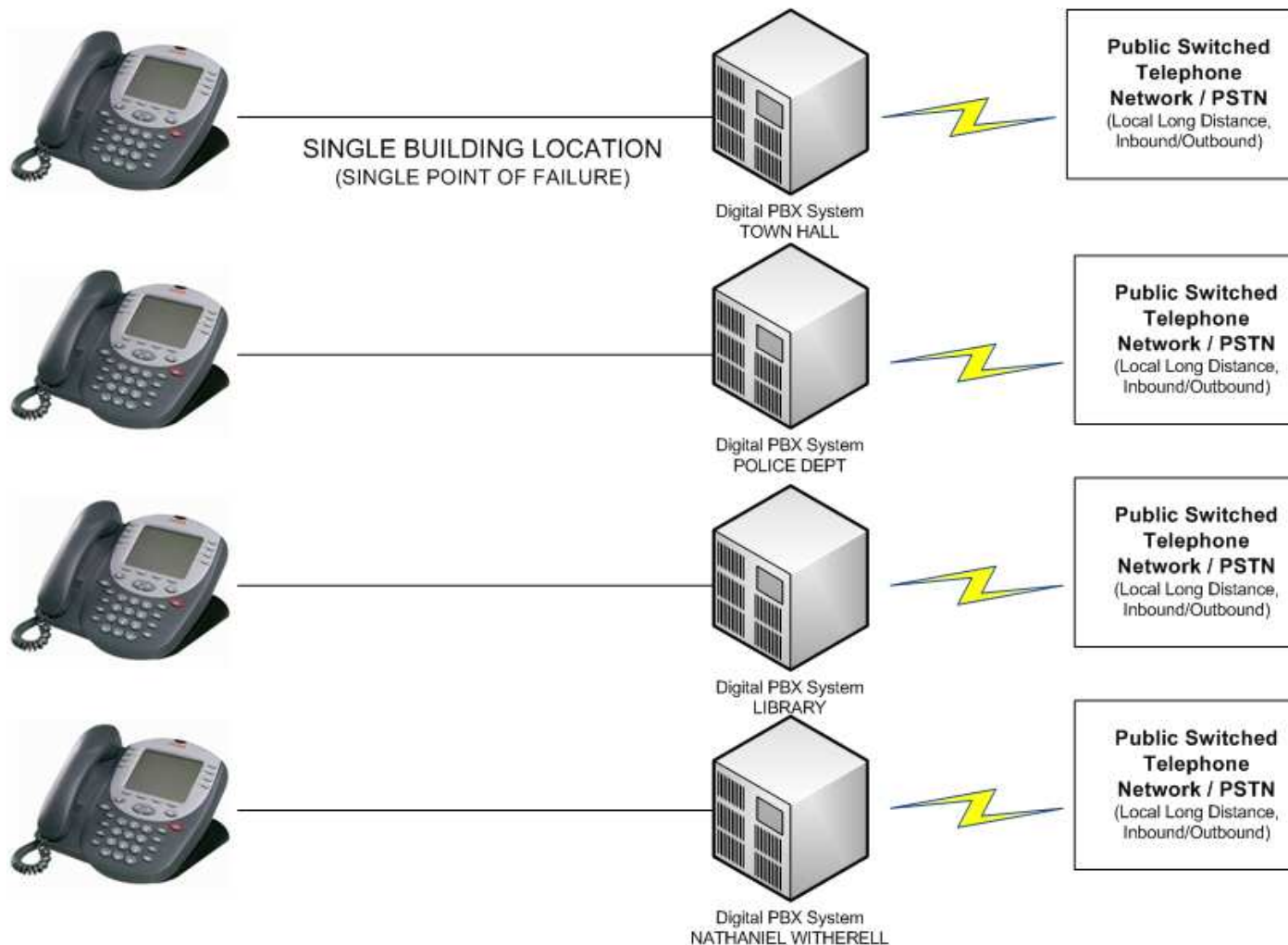
- Centralized
 - Market has moved to a centralized approach with shared resources and less hardware and failure points
 - *Systems most resilient during Hurricane Sandy were an IP-based centralized model*
 - Proposed topology would be
 - Two critical core sites
 - Survivable remotes in sites above 9 users
 - Stand alone phones connected via Lightpath WAN or cable modem for remaining phones
- Decentralized Model
 - A - Decentralized (current environment)
 - Town Hall, Police, Nathaniel, and Library all on their own systems
 - Additional 19 sites with Avaya IP Office, Avaya Partner, or Nortel Norstar
 - 30 Off Premise Extensions
 - B - Decentralized Model (new)
 - Similar to current model with new equipment and elimination of 30 OPXs

A blue-tinted world map is visible in the background of the top section of the slide, showing the continents of North and South America.

Cloud-Based Model Alternative

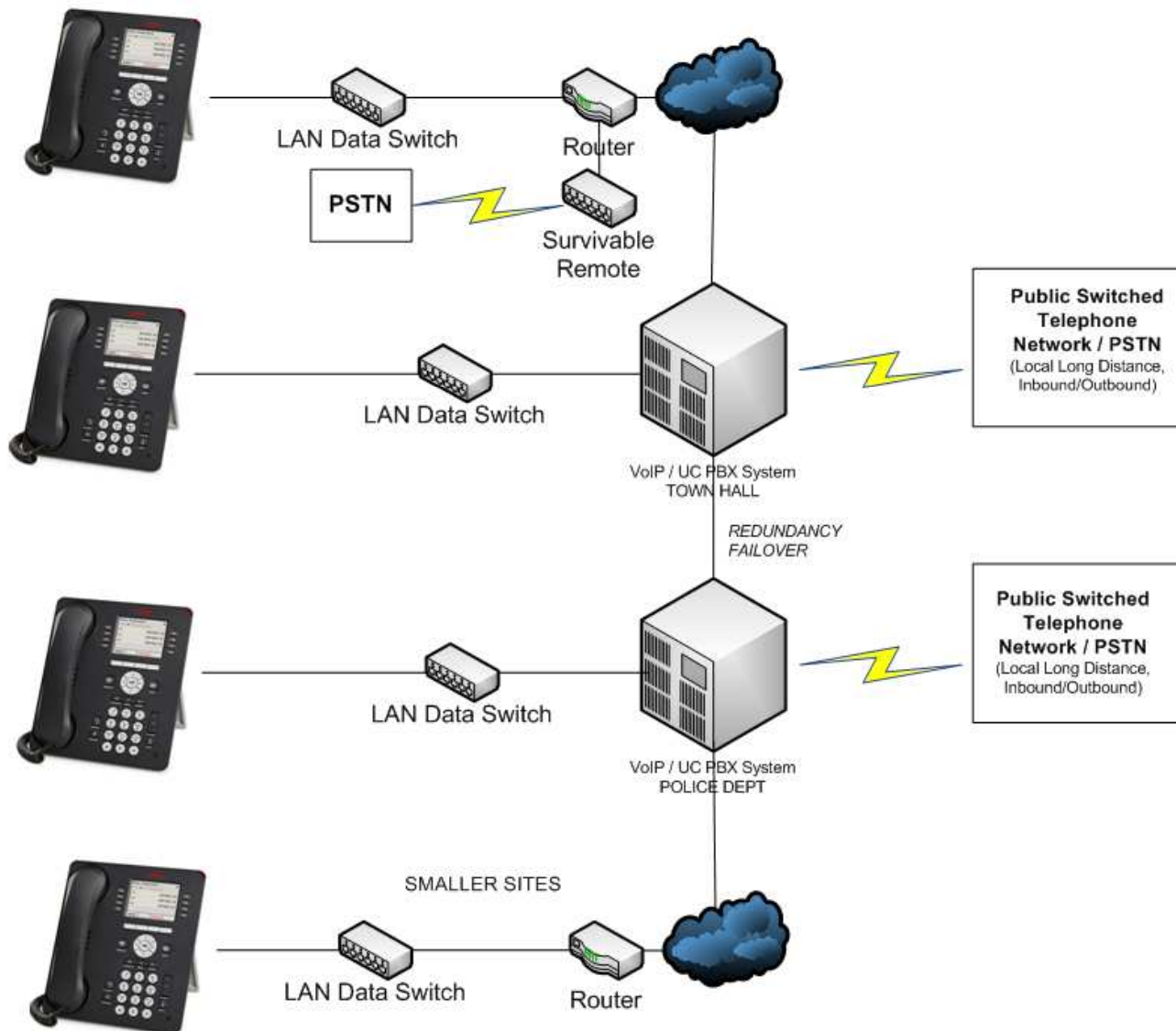
- Cloud models require same QoS-based network and cabling/LAN requirements
- Moves Greenwich towards a managed services model
 - (Requires migration of many Telecom and IT services to an outside vendor)
- Commonly an all-in-one eggs basket approach
- Rental-only model
 - (Purchase phones and analog gateways)
- Needs to be purchased - Phones, install, Phybridge, analog gateways (analog phones, faxes, modems)
- Market strong in SMB market, less so for larger customers like Greenwich
- Recommend strong vendor SLAs, VARs to support 1800+ stations

Current Network



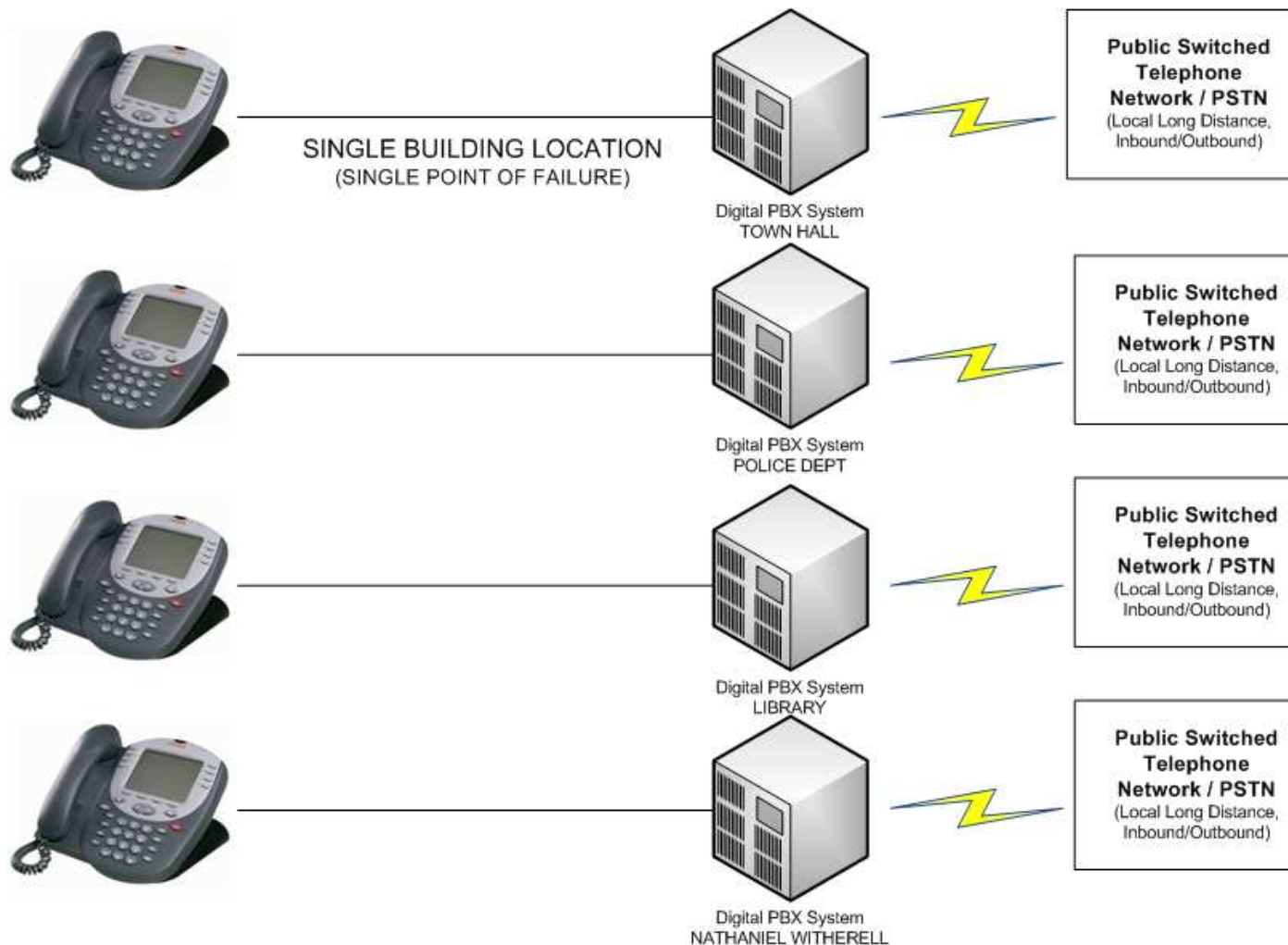
- . Each site is stand-alone
- . Single point of failure at each site
- . Separate trunking each site
- . Legacy equipment

Centralized Network



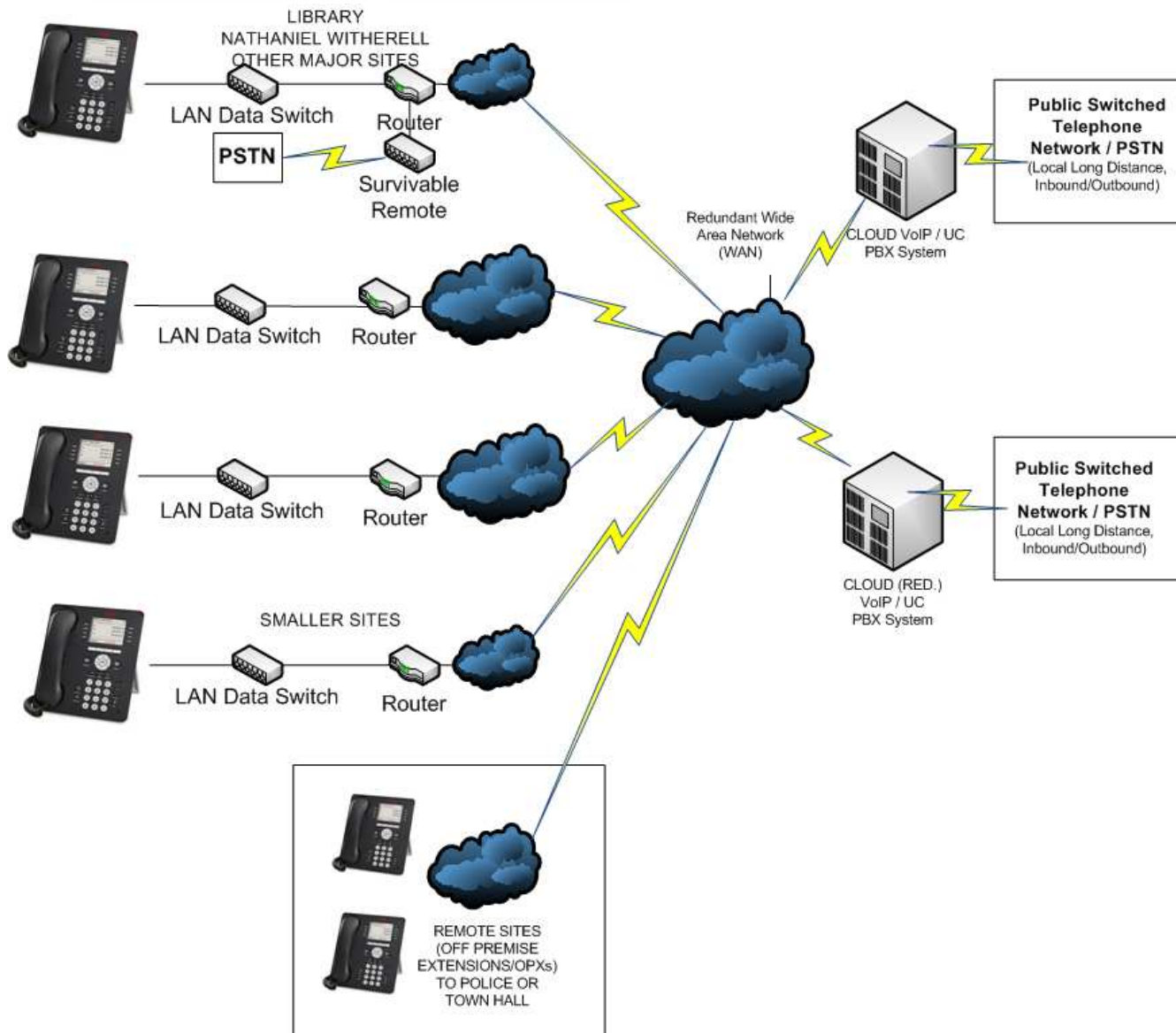
- . Each site connects to core system
- . Redundant
- . Centralized trunking (PRI, SIP)
- . Redundant WAN for all critical sites

Decentralized Network



- . Each site is stand-alone
- . Single point of failure at each site
- . Separate trunking each site
- . Less economical
- . Less redundancy

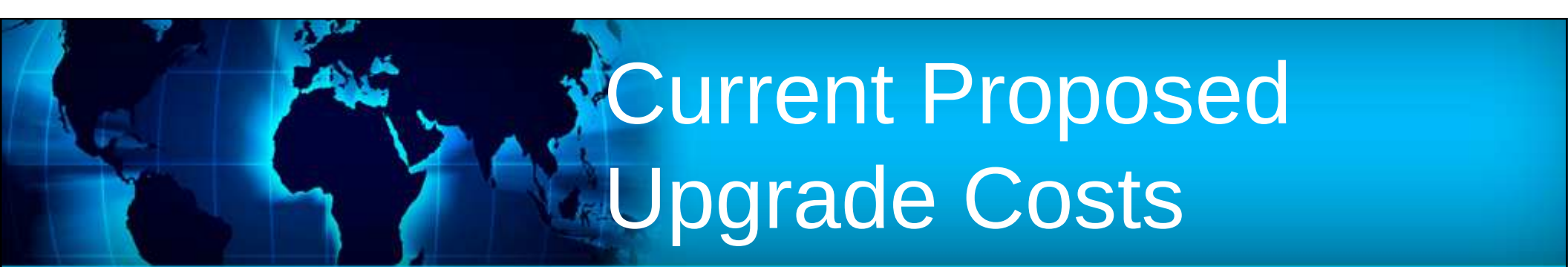
Cloud Model



- . Each site connects to cloud as a remote site
- . Redundant in cloud
- . Redundant WAN for all critical sites

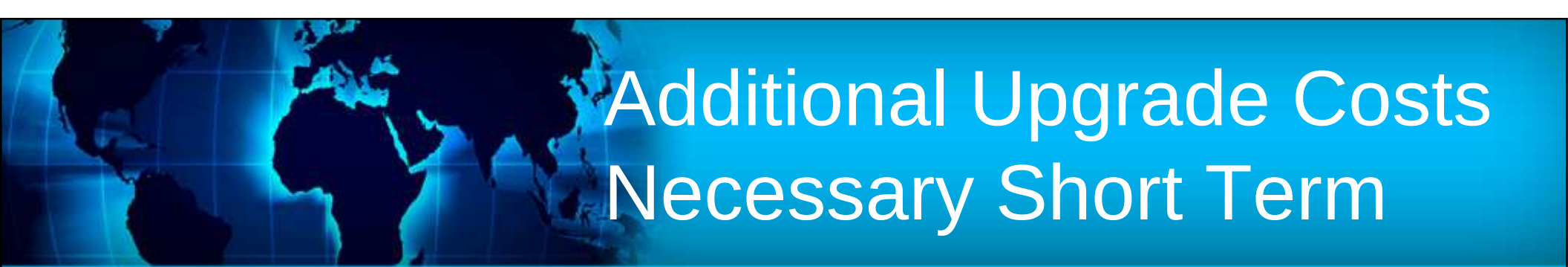
A dark blue world map with a glowing grid of latitude and longitude lines. The map is centered on the Atlantic Ocean, showing the continents of North America, South America, Europe, Africa, Asia, and Australia. The text "Estimated Costs" is overlaid in white on the lower left side of the map.

Estimated Costs



Current Proposed Upgrade Costs

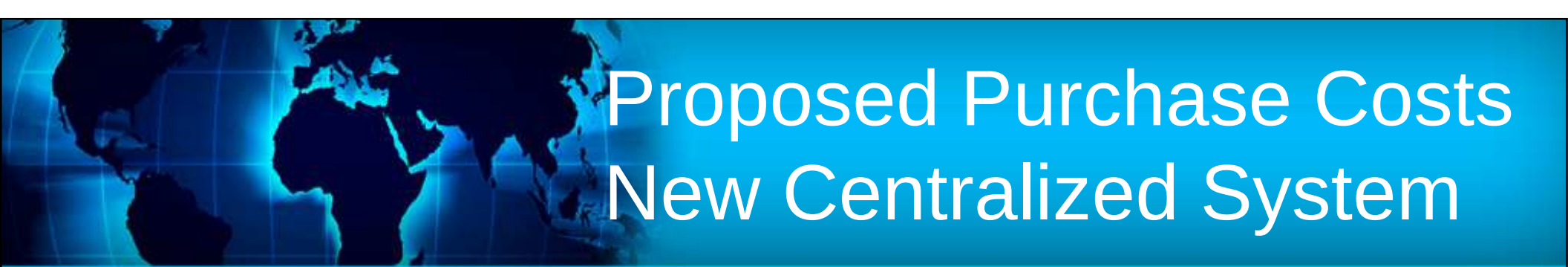
Location	System	Upgrade Cost
Town Hall	Avaya S8720 Telephony	\$249,814
Nathaniel Witherell	Avaya S8500 Telephony	\$63,581
	Octel 200 Voice Mail	\$40,000
		(est.)
Greenwich Library	Avaya S8500 Telephony	\$37,981
	Octel 200 Voice Mail	\$80,000
Nathaniel Witherell	Expansion of Residential Rooms	\$98,000
Sub Total		\$569,376



Additional Upgrade Costs Necessary Short Term

Location	System	Upgrade Cost
Various Town Sites	Upgrade/Replacement of Other Systems	\$115,000
Redsky E911	Upgrade/replace current system	\$31,560
Tapit Call Accounting	Upgrade/replace current system	\$3,586
Sub Total		\$146,560
Total		\$715,936

NOTE: By end of 2015 all digital and IP end points/phones will be at End-of-Life. Replacement for such is estimated at an additional **\$300,000 + \$127,000** for Phybridge data switches, **total of \$427,000.**
Grand Total Est. - \$1,142,936.



Proposed Purchase Costs New Centralized System

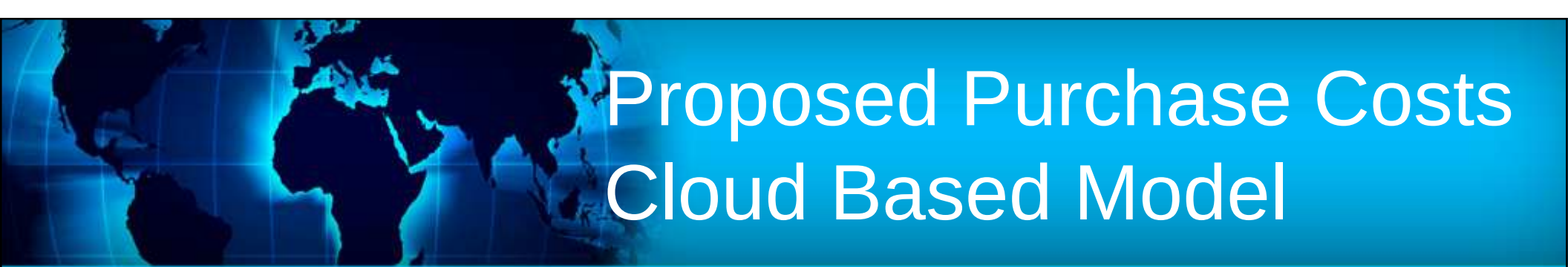
Description	Cost
2 Core System - Includes 1860 phones (w/12 seat Call Center), Fax Machines, Modems, Unified Communications for 1200 users, softphones for 1300 users, Emergency Notification, Audio Conferencing, Voice Mail - Supports all 25 Greenwich Sites and 30 Off Premise Extensions	\$1,178,623
Phybridge Data Switch Network Solution for IP Phones	\$127,000
<i>Subtotal</i>	\$1,305,623
E911 3rd Party Service	\$67,300
<i>Total Centralized</i>	\$1,372,923



Proposed Purchase Costs New Decentralized System

Description	Cost
Individual Stand Alone Systems - Includes 1860 phones (w/12 seat Call Center), Fax Machines, Modems, Unified Communications for 1200 users, softphones for 1300 users, Emergency Notification, Audio Conferencing, Voice Mail	\$1,231,018
- Town Hall	
- Nathaniel Witherell	
- Police Station	
- Library	
Phybridge Data Switch Network Solution for IP Phones	\$127,000
<i>Subtotal</i>	\$1,358,018
E911 3rd Party Service	\$67,300
<i>Total Decentralized</i>	\$1,425,318

Note – Topology will remain silo'd and less redundant, resilient model than centralized



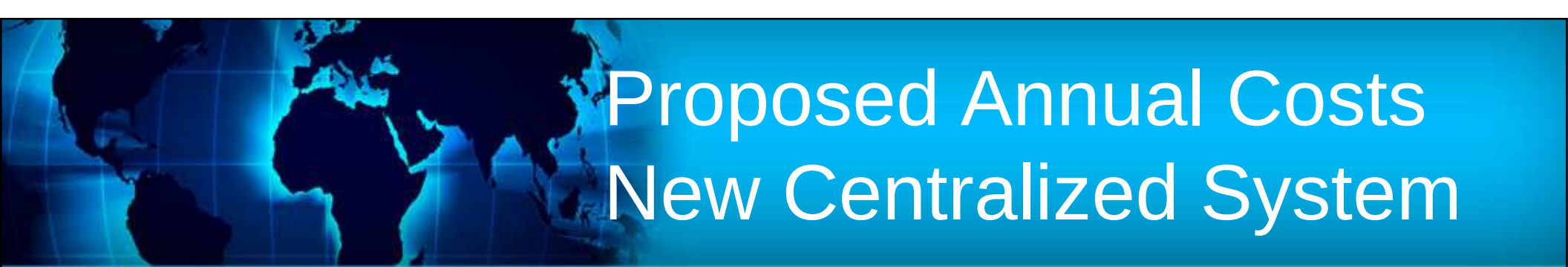
Proposed Purchase Costs Cloud Based Model

Description	Cost
IP Phones	\$236,771
- Installation	\$121,600
Phybridge Data Switch Network Solution for IP Phones	\$127,000
<i>Subtotal</i>	\$485,371
E911 3rd Party Service	\$67,300
<i>Total Cloud – PURCHASE COMPONENTS</i>	\$552,671



Annual Costs – Current Model

Buildings Affected	Description	Cost
All Buildings	Avaya Maintenance	\$88,000
Library, Nathaniel Witherall	Octel Maintenance	\$5,000
All Buildings	Redsky E911 Maintenance	\$11,000
All Buildings	Annual Move and Change Costs	\$20,000
Multiple Buildings	Off Premise Extensions (OPX)	\$15,000
Police, Town Hall, Library, Nathaniel	Ongoing Software Subscription / Upgrade Support Cost	\$19,000
Total Annual Cost		\$158,000



Proposed Annual Costs New Centralized System

Description

Cost

CENTRALIZED APPROACH

Annual Maintenance, Software Subscription/Upgrades	\$130,562
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E911 3rd Party Service	\$26,910
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<i>Total Annual Costs - Centralized</i>	\$157,472
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A blue-tinted world map is visible in the background of the top header section.

Proposed Annual Costs New Decentralized System

Description	Cost
DECENTRALIZED APPROACH	
Annual Maintenance, Software Subscription/Upgrades	\$135,802
E911 3rd Party Service	\$26,910
<i>Total Annual Costs - Decentralized</i>	\$162,712



Proposed Annual Costs Cloud Based Model

Description	Cost
CLOUD APPROACH	
Annual Cloud Rental Costs	\$457,920
Annual MPLS Cost (redundant)	\$40,800
Annual Maintenance, Software Subscription/Upgrades	\$48,537
E911 3rd Party Service	\$26,910
<i>Total Annual Costs - Cloud</i>	\$574,167



Cost Summary - Models

#	Description	Purchase Costs	Annual Costs	7 Year TCO Costs **
1	Current Upgrade *	\$715,936	\$158,000	\$2,353,605
2	Centralized Model	\$1,372,923	\$157,472	\$2,579,546
3	Decentralized Model	\$1,425,318	\$162,712	\$2,672,093
4	Cloud Model	\$552,671	\$574,167	\$4,952,204

* By end of 2015 all digital and IP end points/phones will be at end of life. Replacement for such is estimated at an additional \$300,000 + \$127,000 for Phybridge data switches, total of \$427,000. Grand Total Est. - **\$1,142,936.**

** Assumes 3% annual rate increase for cost of living/money

A stylized world map with a blue color scheme. The landmasses are dark blue, and the oceans are a lighter blue. A grid of white lines representing latitude and longitude is overlaid on the map. The text "Savings Areas" is written in white in the lower-left quadrant.

Savings Areas



Savings

- Several savings opportunities are available to the Town of Greenwich

Description	Annual Savings
Reduced Off Premise Extensions (OPXs)	(15,000)
- Eliminate legacy OPXs and replace with VoIP phones	
- Assumes data connectivity (private Lightpath circuit or public cable modem/DSL))	
Reduced Move and Change activity	(20,000)
- In a full IP phone environment	
<i>Total Annual Savings Opportunities</i>	(35,000)

NOTE: SIP Trunking

- Replacing current PRI trunks and Police –only SIP trunks using a centralized approach reducing costs by 20% annually. Note that Broadview (PRIs) and Verizon (Police SIP Trunks) contracts are up in 2015 and 2016 respectively. May be possible for one vendor to buy-out the other early, or possible 3rd party

(85,000)

A dark blue world map with a glowing grid of latitude and longitude lines. The map is centered on the Atlantic Ocean, showing the continents of North America, South America, Europe, Africa, Asia, and Australia. The text "Recommendations and Next Steps" is overlaid in white on the lower left portion of the map.

Recommendations and Next Steps

A blue-tinted world map is visible in the background of the top header section.

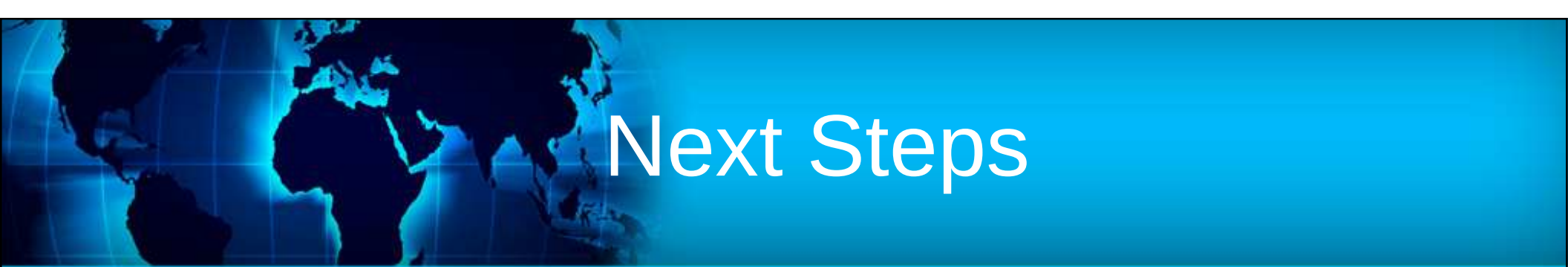
Recommendations

- Choices include
 - Upgrade as is
 - Migrate to new Avaya or competitor platform
 - Move to cloud platform
- Recommend procurement process and RFP development using Avaya and others based on 2-3 year out costs
 - Consider cloud as an alternate
- Leverage savings as depicted
- Continue to pursue extension with Avaya based on current End-of-Support notice
- Add QoS to WAN (best practices)



Timeline (Est.)

#	ITEM AND DESCRIPTION	EST. DATES
1	Site and Network Readiness	Sept 2013 - Nov 2013
	- Review closets, data switches/routers, and Wide Area Network (WAN) redundancy	
2	Procurement Phase	Oct 2013 - Feb/Mar 2014
	- RFP development and issuance	
	- Vendor procurement process - Bidders Conference, Proposals Review, Short List, Final Vendor Selection	
	- Greenwich BET approval	
	- Contract review and approval	
3	Implementation	
	<i>Phase One - Telephony (Migrate current systems to new platform)</i>	Mar 2014 - 3rd/4th Q 2014
	- Project planning, system ordering, site preparation	
	- Coordinate network readiness upgrades as required (closets, switches/routers, WAN)	
	- Core(s) implementation, training, initial sites	
	- Remote site implementations and turn up	
	<i>Phase Two - UCC (introduce new Unified Comm. Tools to Greenwich)</i>	3rd/4th Q 2014 - 1st Q 2015
	- Review environment for UCC applications and use cases	
	- Include IM/chat, softphones, Unified Messaging, presence/friends lists, audio and video conferencing, documents sharing, one number reach	
	- Project planning, training	
	- Group testbed implementation and feedback	
	- Implement UCC to rest of community	

A blue-tinted world map is visible in the background of the top header section, showing the continents of North and South America.

Next Steps

- Review this document with Town of Greenwich management for brainstorming and next step purposes
- Obtain approval on directions Greenwich wants to move towards based on recommendations within
- Receive approval towards procurement process and RFP development
- Thank you for the opportunity to serve the Town of Greenwich
- We look forward to continue serving you and implementing next steps as directed by Town of Greenwich management