

Universal Unified Communications Integration

Managing the convergence of unified communications to IP and into the cloud

The Computer & Instrumentation Chapter of the
IEEE New Jersey Coast Section

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Outline

- Motivation
- Nondestructive Unified Communications: A Case Study
- Current Work
- Concluding Thoughts
- Q&A

Motivation

- Communication is important
- Communication becomes increasingly more global:
 - Across organizational boundaries, across time zones, across countries
- The number of disparate communication methods is growing rapidly:
 - Public switched telephone network, PBX
 - Cell phones + SMS
 - Standards (SIP) based and proprietary VoIP systems (e.g., Skype)
 - Traditional video conference equipment (VTC)
 - Web collaboration (e.g., Adobe Connect, WebEx)
 - Social networks
 - Video games (e.g., Battlefield 2)

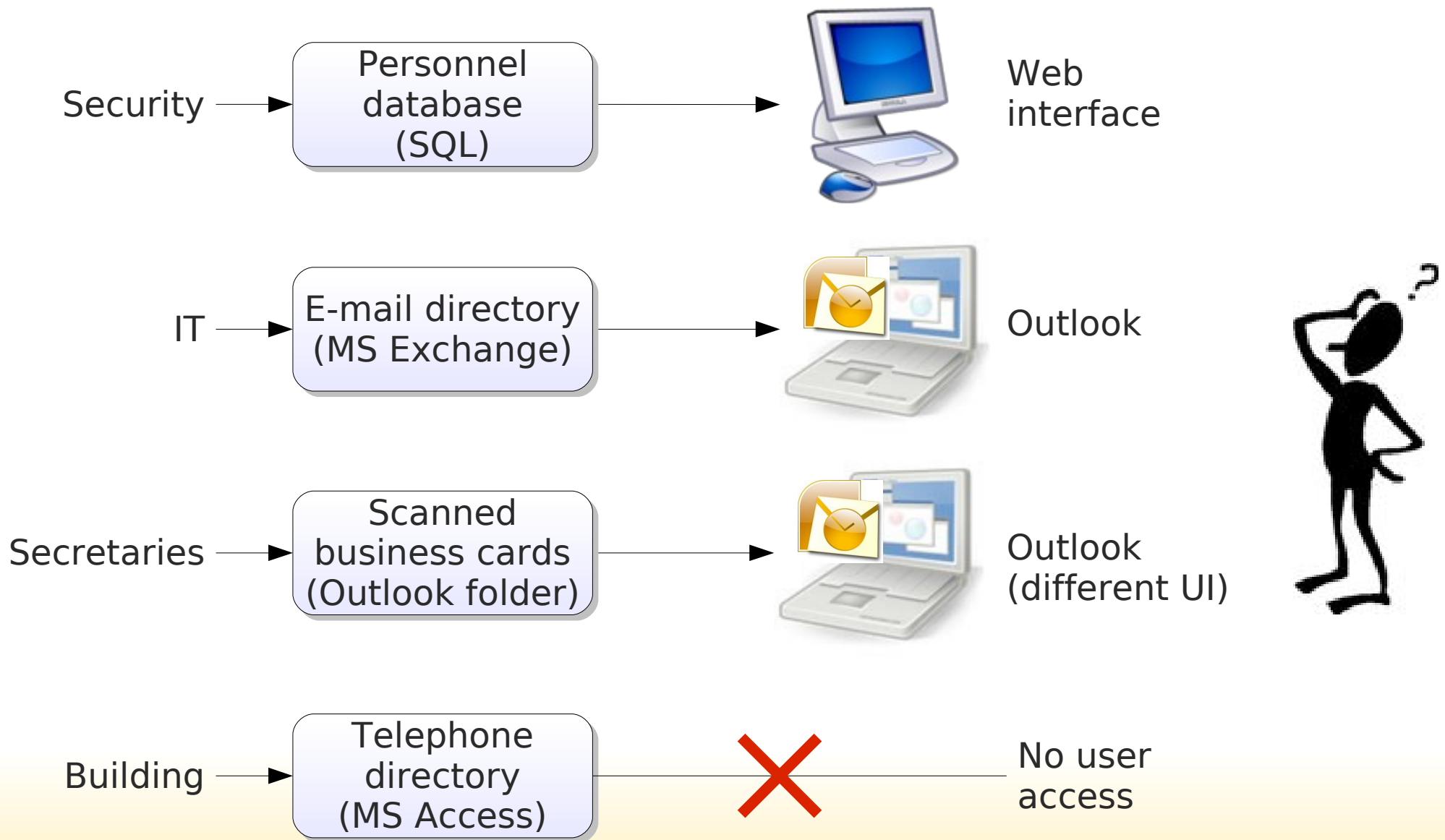
Motivation (continued)

- While the choices increase, so does the complexity of using them:
 - Find a compatible communication type for both parties
 - Manage a multitude of identities
 - Increased mix of business and personal identities
- Single-vendor solutions become less attractive
 - There is no one single vendor that can deliver all things UC, and heading down the deployment path with a single vendor will probably lead to problems down the road [Yankee Group, February 2009].
- No visible effort (yet) from traditional vendors or service providers to embrace and manage the growing communication disparity

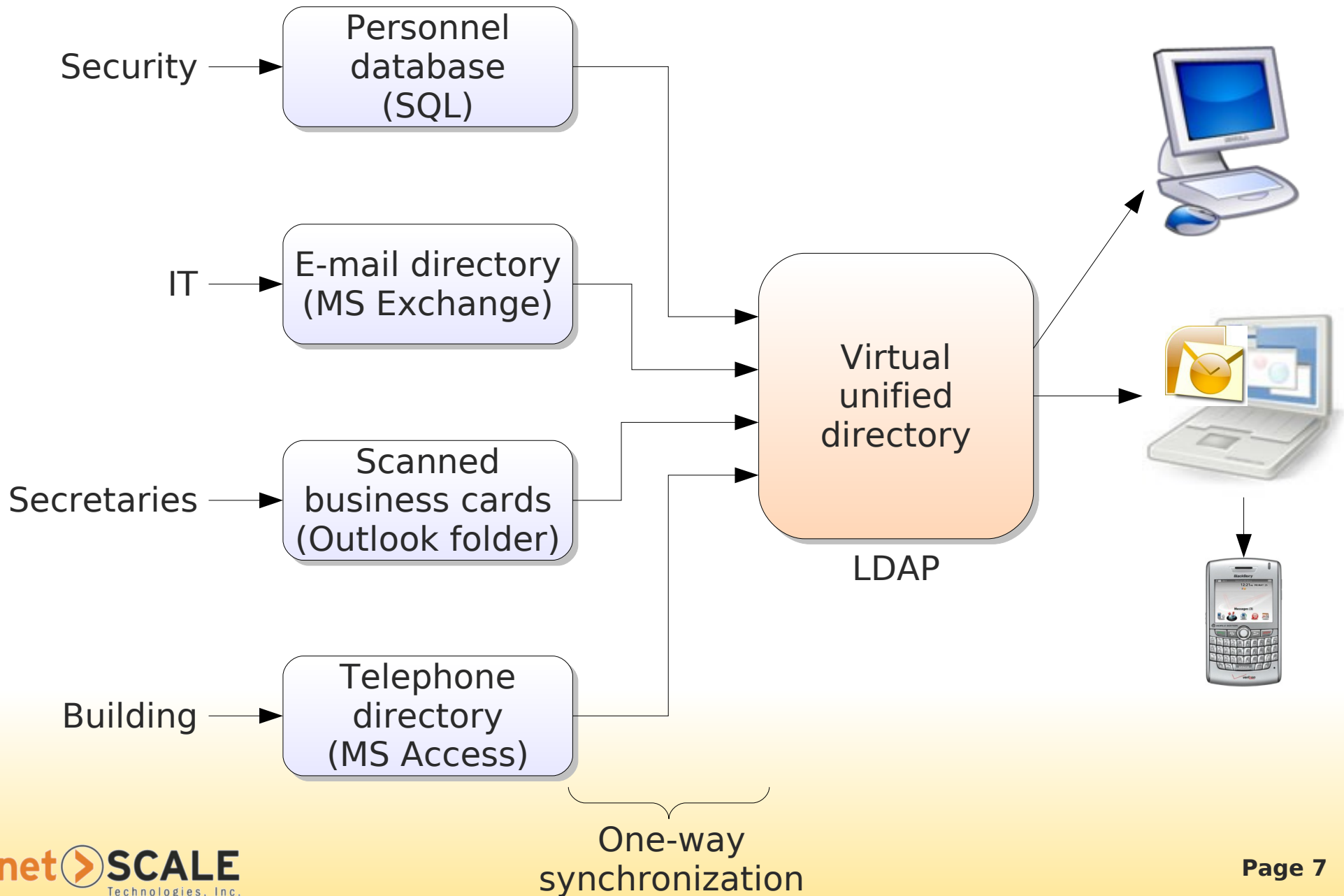
Nondestructive Unified Communications: A Case Study

Work done for a DoD agency in 2003 – 2005

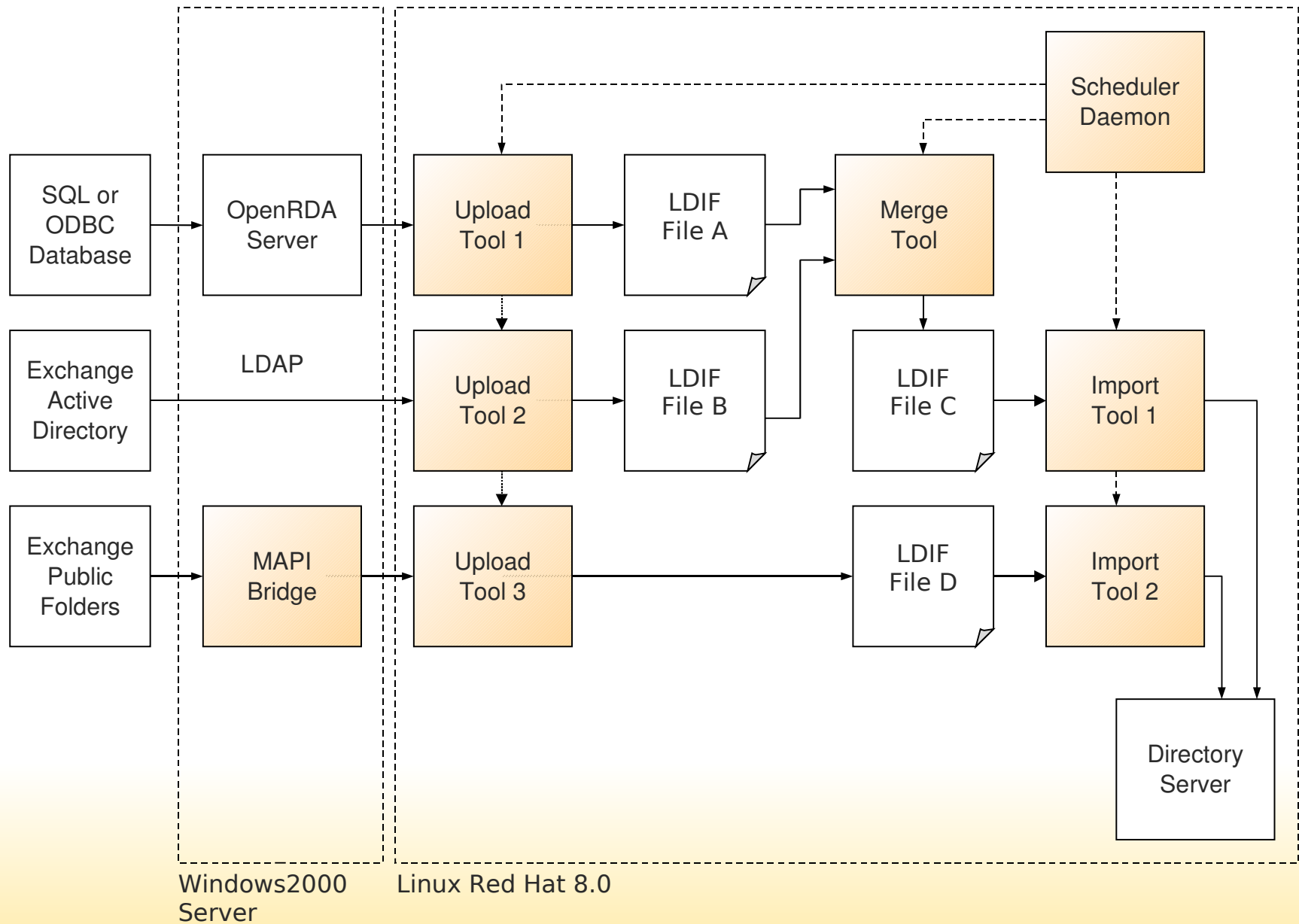
Opportunity 1: Disparate Directories



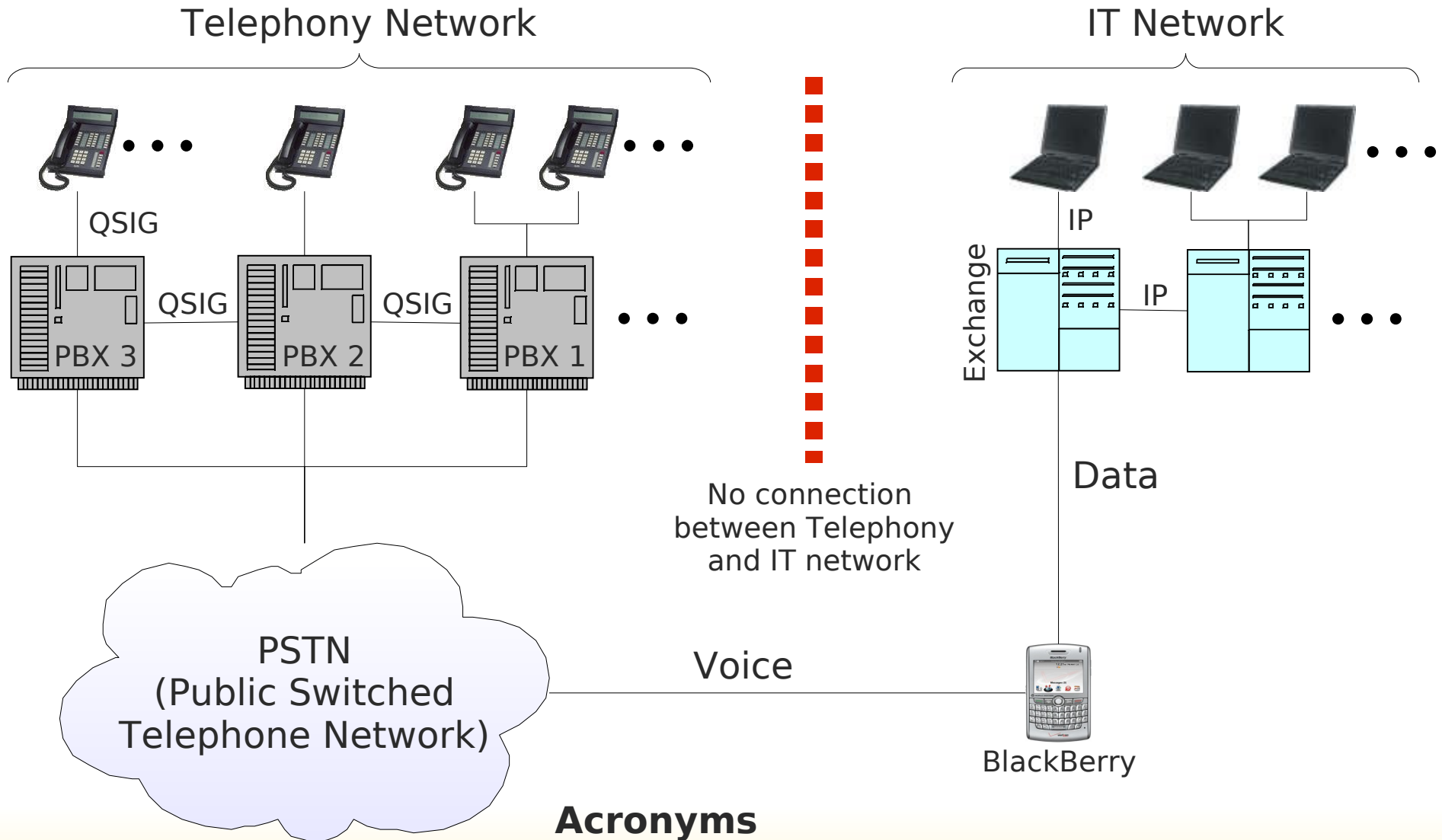
Nondestructive Directory Unification



The Actual Solution



Opportunity 2: Segregated Comm Systems



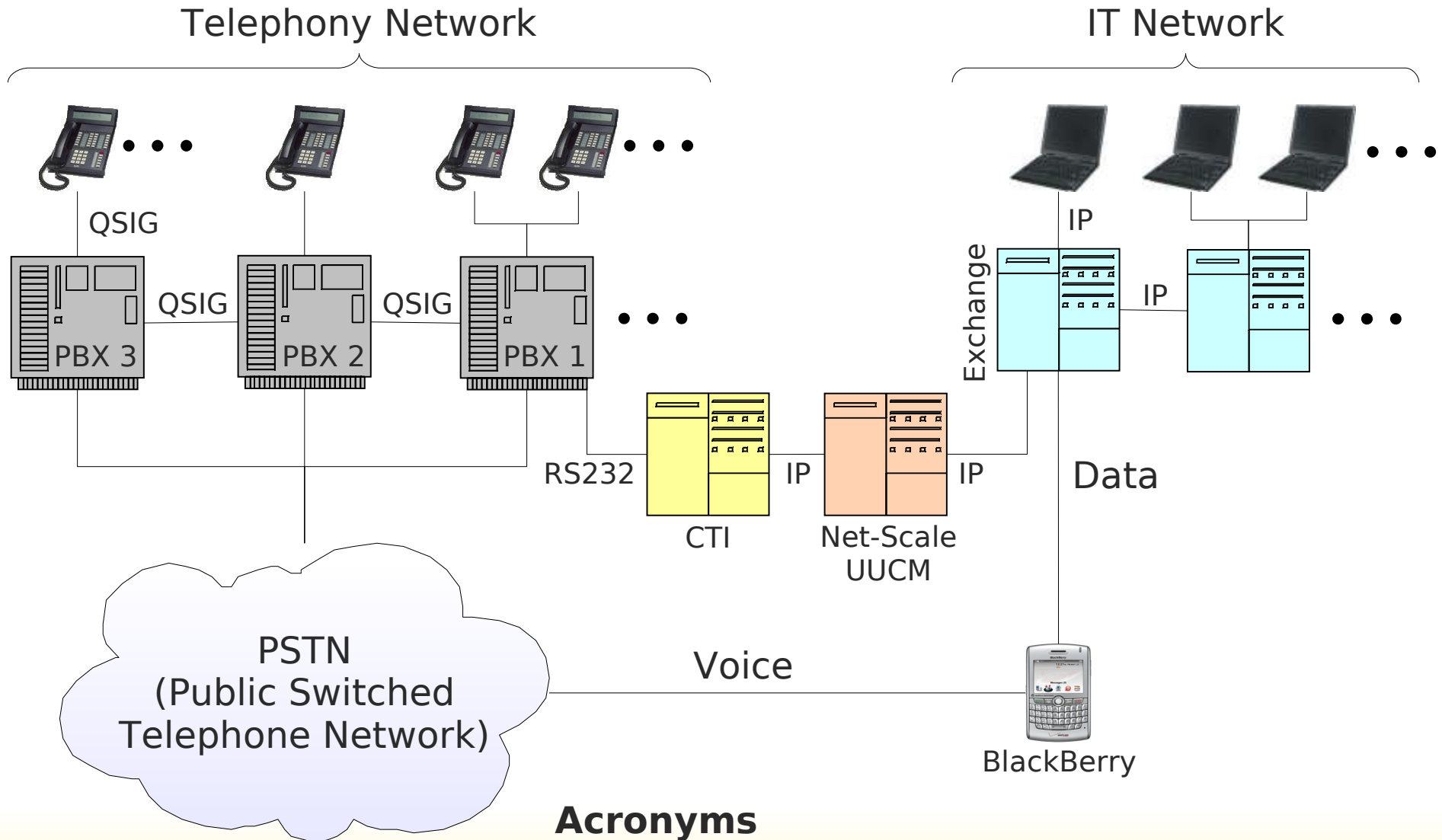
Acronyms

UUCM = Universal Unified Communications Manager

CTI = Computer Telephony Interface

QSIG = ISDN based signaling protocol

Step 2: Nondestructive Unified Comm



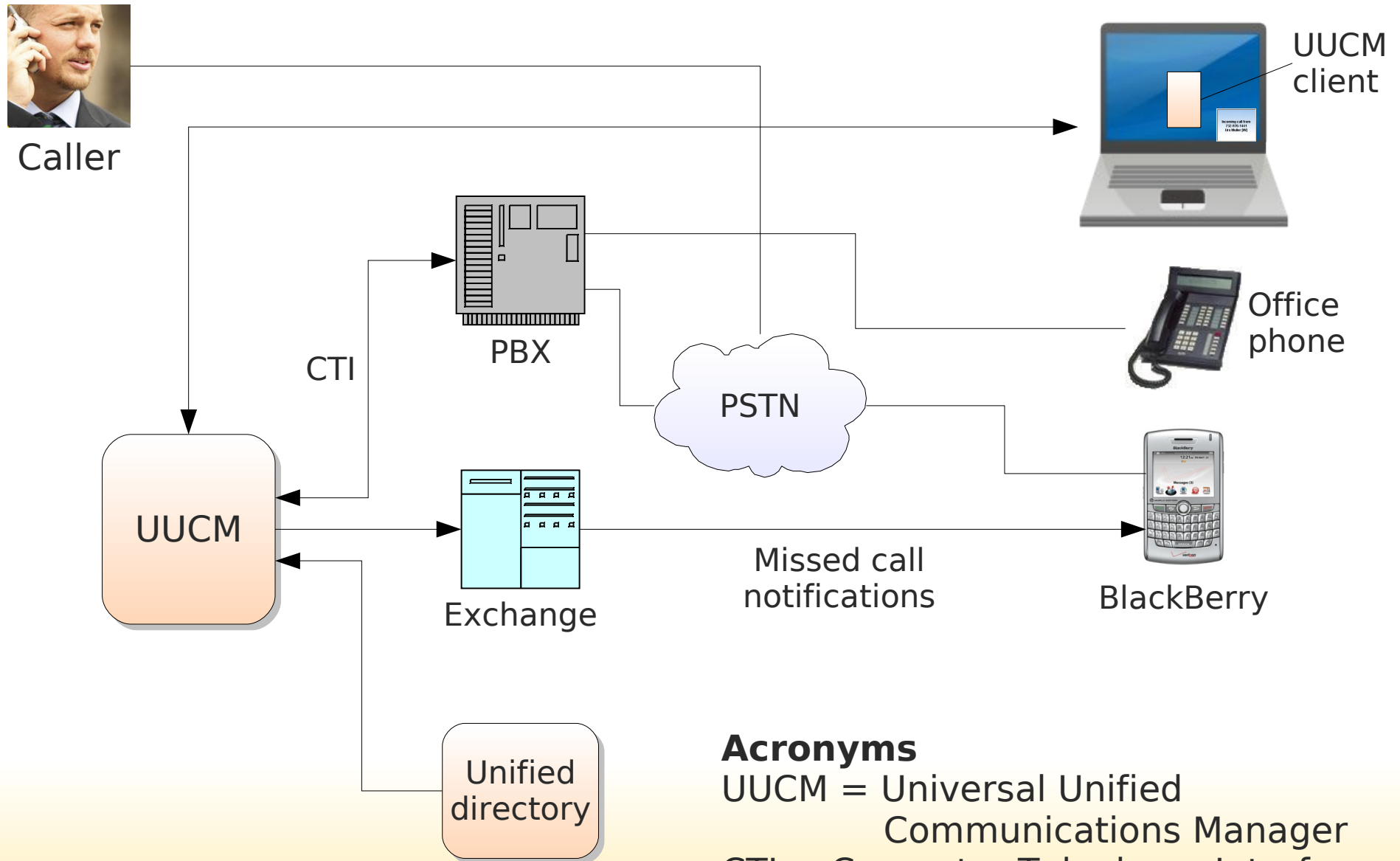
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UUCM Configuration



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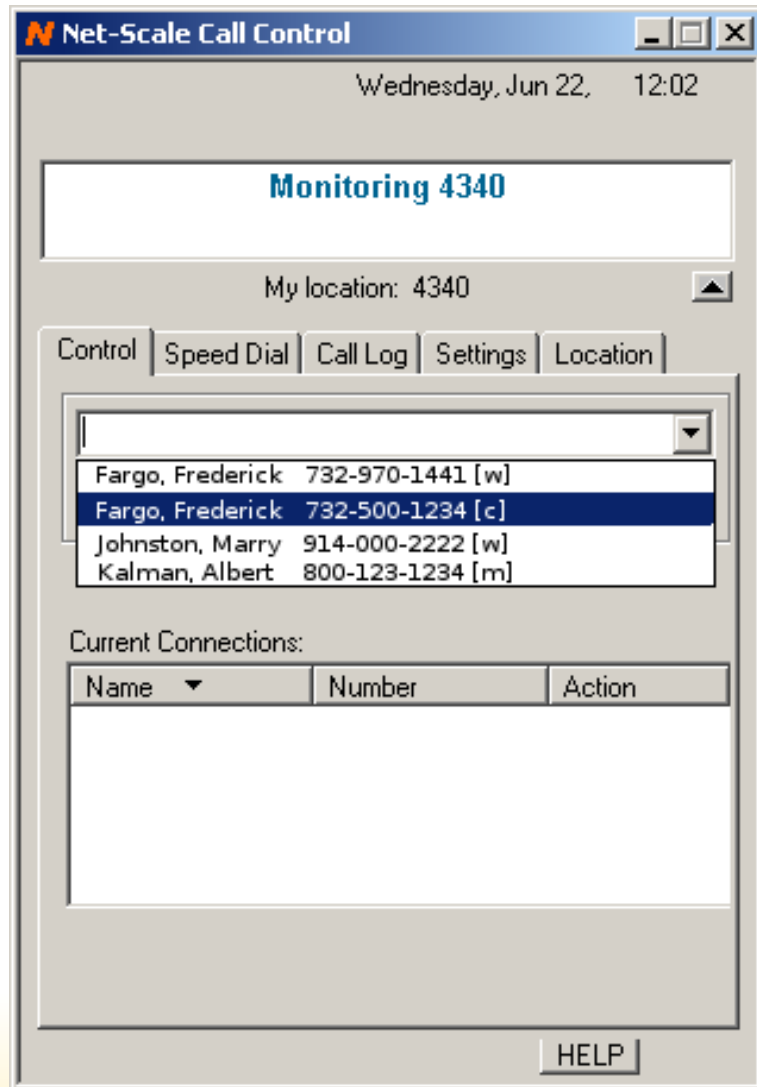
Missed Call Notification



Missed call notification message

- Unanswered calls trigger the an e-mail notification
- E-mail is pushed to BlackBerry
- Notification message contains a summary of available caller information collected from:
 - Caller ID name and number
 - Enterprise directories
 - Scanned business cards
 - White and yellow pages
- Information displayed:
 - Name and current location
 - Organization
 - Telephone numbers
 - E-mail addresses

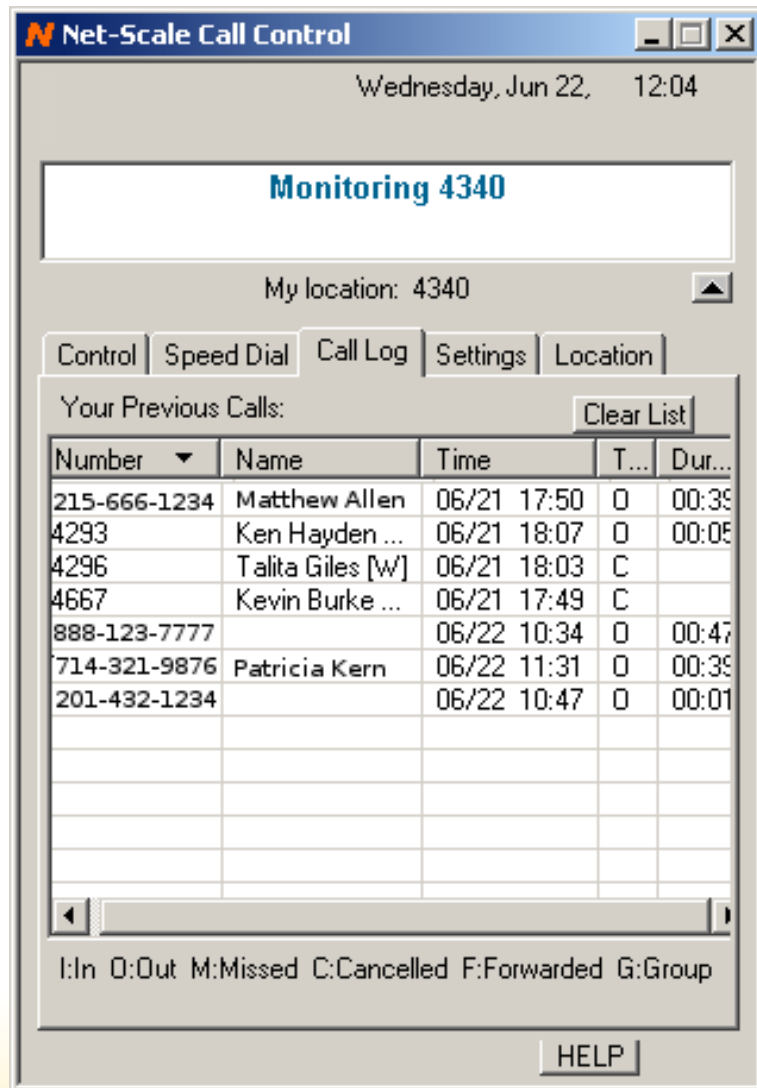
Dial-By-Name



UUCM Client

- Enter name
- Select number
- System calls you, then completes call to selected number
- Call saved to call log
- Requires accurate information in Common Directory for lookup

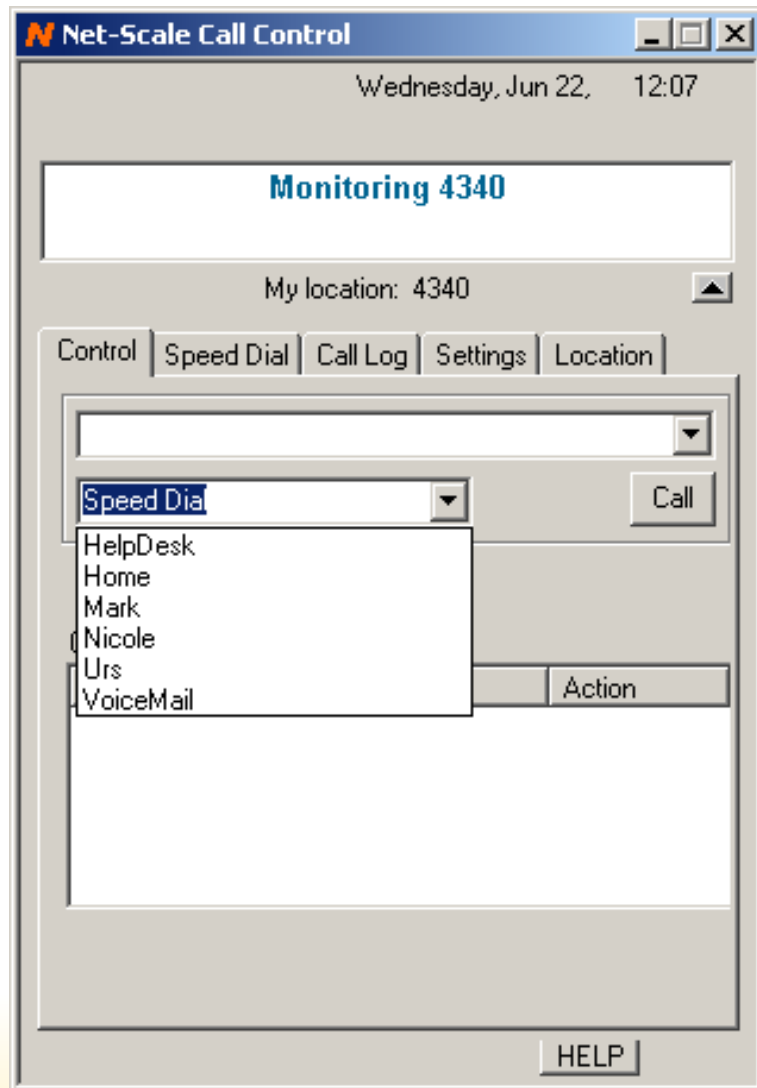
Call Log



UUCM Client

- Incoming and outgoing calls are saved
- Number, name, time of call, type and duration information are logged
- Sort by any column
- Includes name lookup if number is in Common Directory
- Call any entry by double clicking

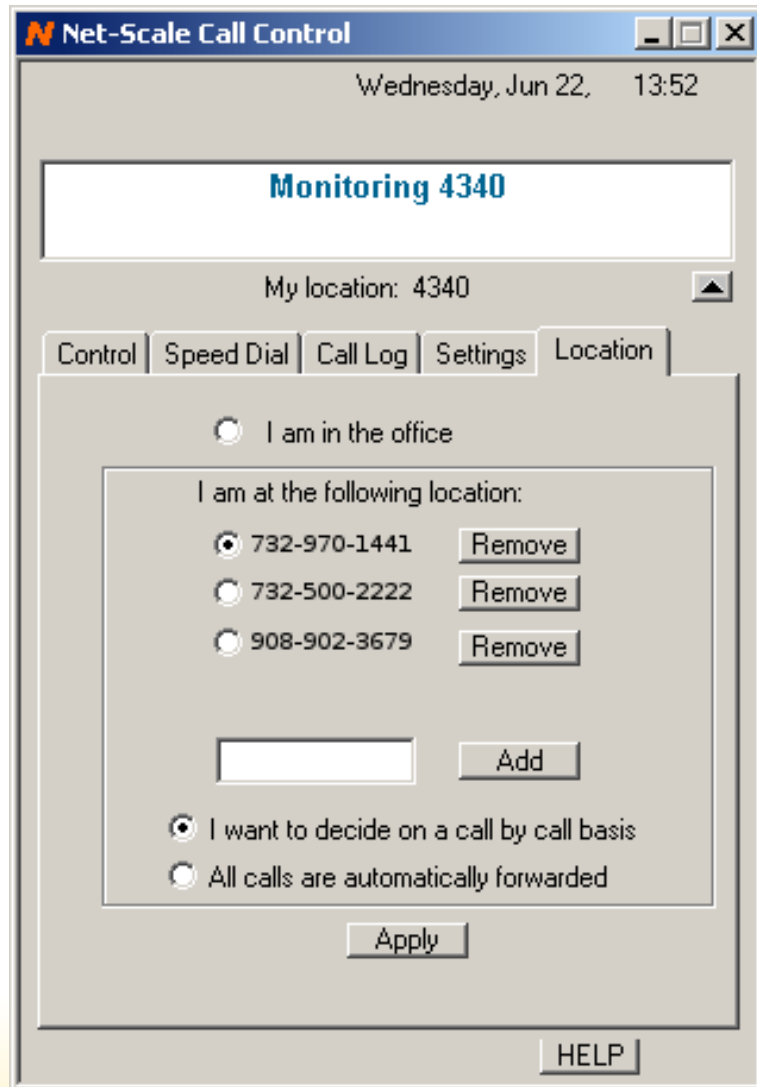
Speed Dial



UUCM Client

- User can populate a list of speed dial numbers
- Select any entry from the drop-down list to initiate a call

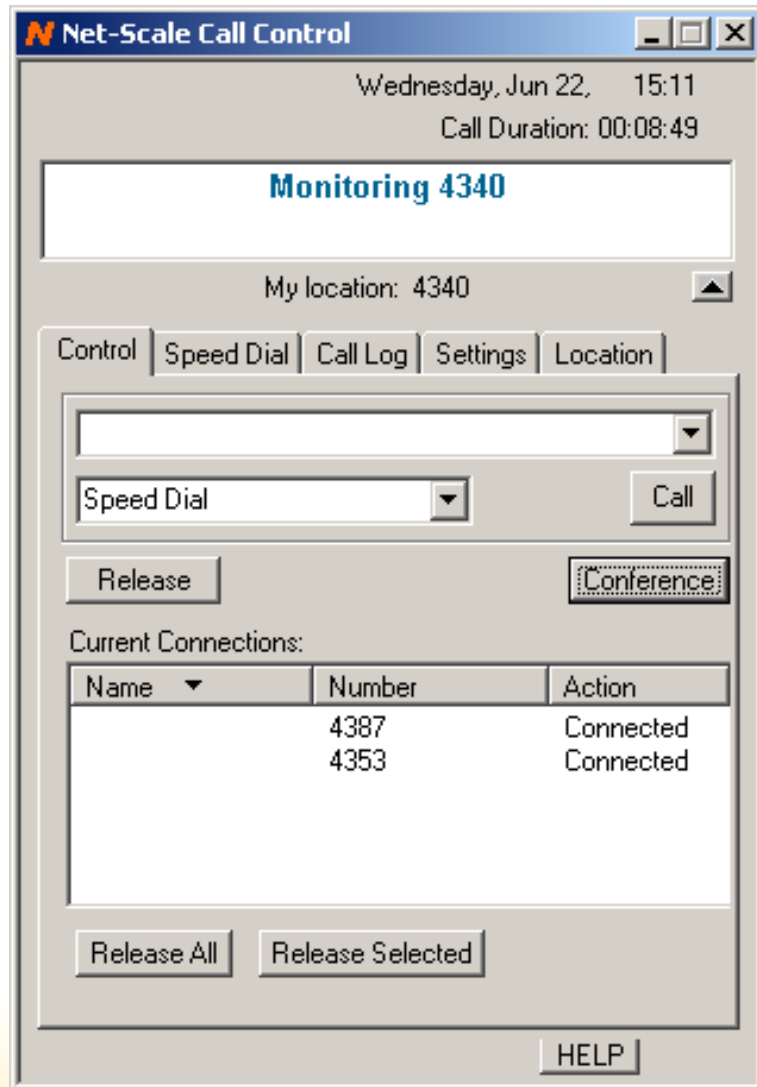
Remote Access to Office Phone



UUCM Client

- Select phone number of remote location
- Select whether to forward all calls, or to decide on a call-by-call basis
- Incoming calls result in pop-up with option to answer, which forwards call to the remote number

Conference Calling



UUCM Client

- Can add a caller during a call, then conference all together
- Can answer an incoming call during a call, then conference all together
- Release either or both lines during call

The Main Benefits

- No replacement (destruction) of any existing infrastructure
 - All previous features, processes, user interfaces continue to work
 - Minimal procurement of new systems and maximum reuse of the existing infrastructure
 - Existing processes for data management remain unchanged
- Fail safe: if the new system fails, the base infrastructure continues to operate unchanged
- Full customization to client's needs
- Short cycle from needs analysis to deployment (~6 month vs. 2–3 years product feature cycle)
- No end user disruption during deployment
- Unification of disparate infrastructure
 - Leads the client to vendor independence
 - Supports a heterogeneous environment

Summary of Main Features

- Virtual unified directory
 - Employees, contractors, scanned business cards, external white and yellow pages
 - Rules based synchronization with Outlook to make content off-line accessible
- Missed call notification with full unified directory information and ability for:
 - Click-to-return call with choice of office, cell phone, others
 - Click-to-respond by e-mail
 - Click-to-check voice mail
- Caller-ID pop-up on PC screen (with full unified directory information) with ability for:
 - Real-time incoming call redirection on a call-by-call basis
- PC call control client (with full unified directory information)
 - Enhanced caller-ID, call log, dial-by-name, ad-hoc conference calls

Current Work

A Typical Customer Situation

A Medium to large size organization with 500+ seats

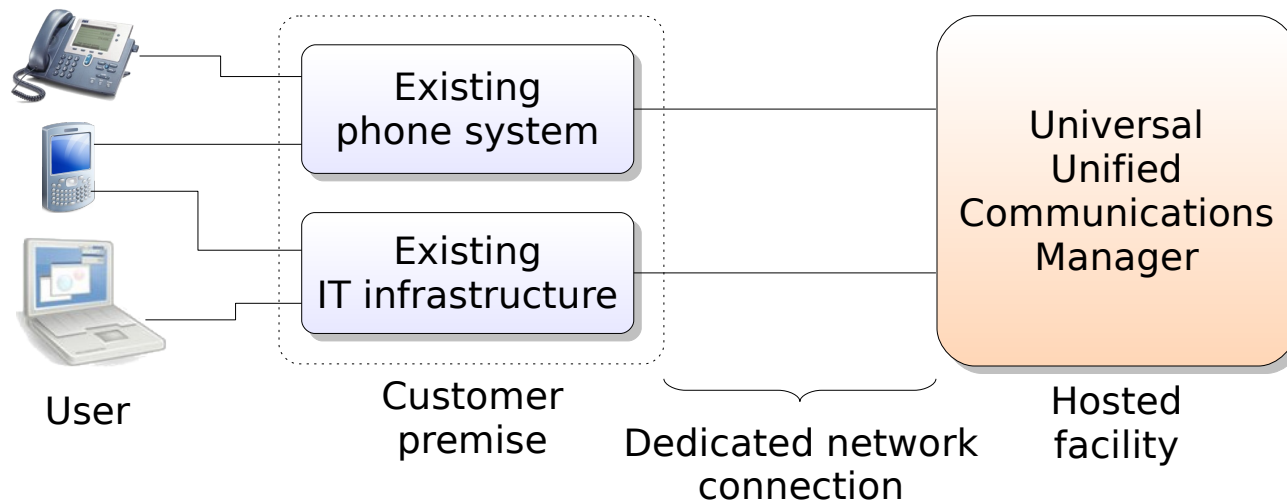
- Need to consider future trends
 - Traditional versus IP-based communication (telephony)
 - On premise versus “cloud computing”
- Exposed to conflicting vendor assertions
- When planning for a new system an organization wants to:
 - Maximize reuse of existing investment into infrastructure and processes
 - Minimize risk and disruption
 - Minimize user training
 - Minimize capital and other expenses
 - Maximize future options and flexibility
 - Maximize vendor independence
 - Maximize unification of disparate systems

Can We Apply the Nondestructive Approach?

Requirements:

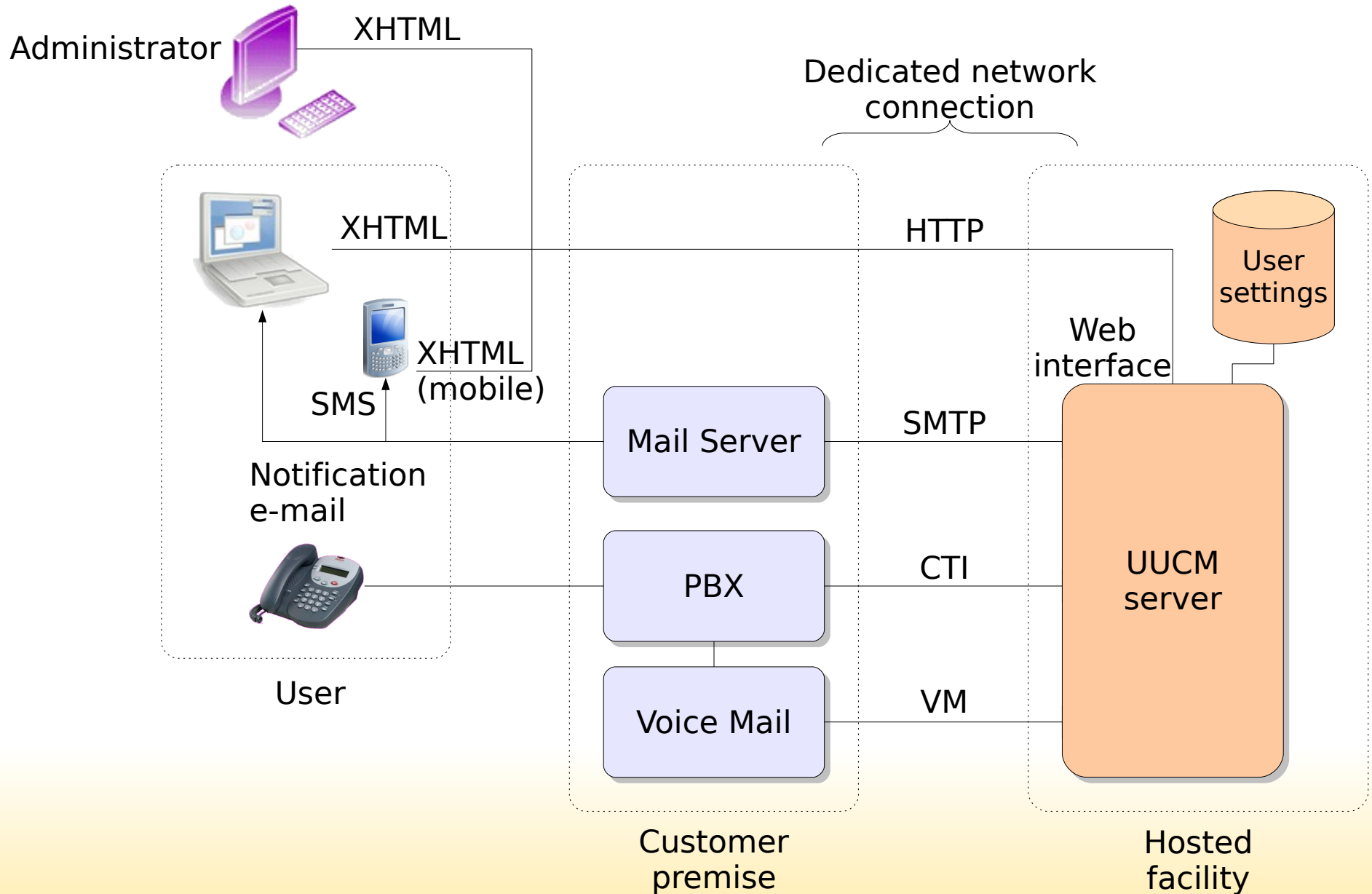
- Minimize the amount of customization work per client
- Minimize time to deployment
- Ability to manage hundreds of customers
- Minimize risk and capital commitment for the customers
- Allow customers to mix
 - Communication equipment on-premise and in the cloud
 - Traditional and IP-based communication
- Provide a convincing roadmap for the future

The Basic Idea



- Move the UUCM into the cloud
- Partner with hosted enterprise IP service providers to install UUCM
- Let customers:
 - Keep basic communication services on premise
 - Mix IP and on-IP based systems
 - Gradually move more communication components into the cloud

Overview Phase 1



The Road Map

- Phase 1, Release 1
 - Single-number reach, live call transfer (without losing the call), mobile PBX out-dial and click-to-dial
 - Missed call notification, call log, new voice mail notification, visual voice mail
 - Auto presence indicator (office, activity, busy)
- Phase 1, Release 2
 - Ad-hoc conferencing (through existing PBX)
 - Incoming call filter
 - Corporate directory and calendar integration
- Phase 2
 - Voice service and PBX functionality in the network
 - Full featured visual teleconference service
- Phase 3
 - Multimedia communication manager; integrates and unifies disparate systems, e.g., Adobe Connect, WebEx, Skype

Concluding Thoughts

Conclusions

- Communication diversity is increasing for the time being and so is the complexity of using communication systems.
- No single technology or vendor appears to be dominating.
- We may live with a highly heterogeneous communication world for a while.
- Many things can be done to make communication for end users more efficient and easier.
- Customer demands are increasing. A single vendor solution is often no longer accepted.

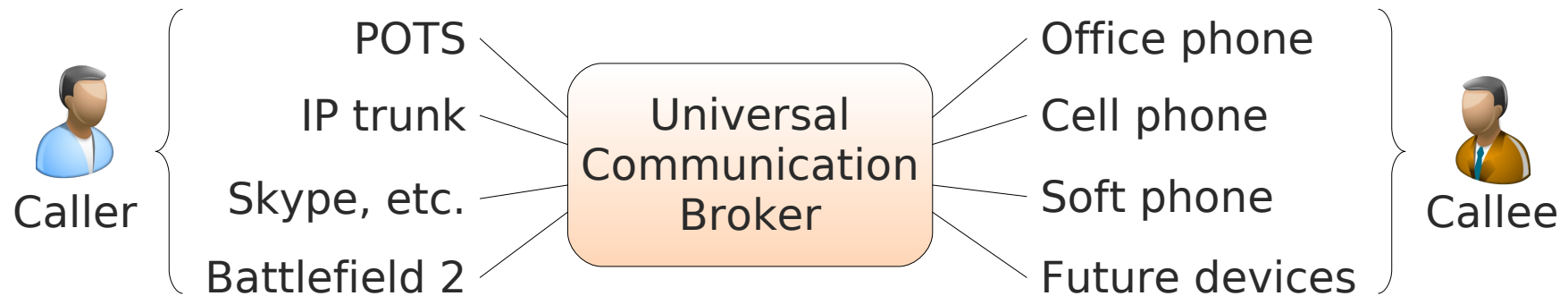
Customers Are Getting More Demanding

From a recent USPTO RFI (Request for Information):

- From Requirements:
 - Enable USPTO employees to chair videoconferences without additional assistance
 - Users should be able to start videoconference within 5 minutes of entering the conference room
 - Invite remote participants to conference via Outlook, participants join conference with one mouse click, from Outlook Calendar event
- From Q&A:
 - Q: Is the USPTO considering replacing the “Cisco VoIP” branch office phone system?
 - A: The USPTO does not anticipate replacing the “Cisco VoIP” branch office phone system at this time. The Unified IP Communication System must seamlessly connect and integrate with this system.

Three Concepts to Consider

1. A universal communication broker



2. Automatic smart presence indication

- Automatically collects presence information from multiple sources (phone usage, on-line activity, calendar)
- Solid and easy to manage privacy settings

3. Seamless move from one media to another

- Start with instant messaging
- Single-click to add voice
- Single-click to add video
- Single-click to add other users

Thank you for your attention!

Questions

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