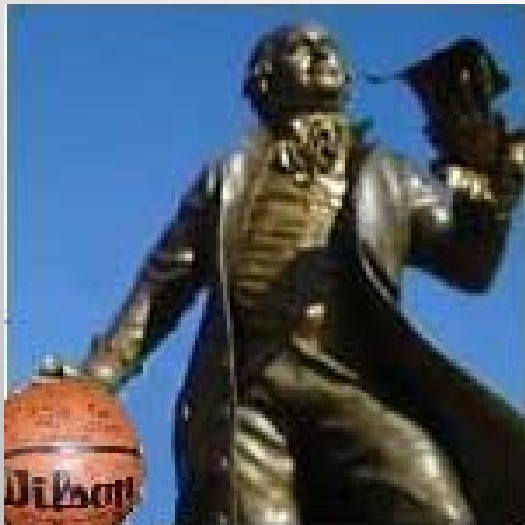


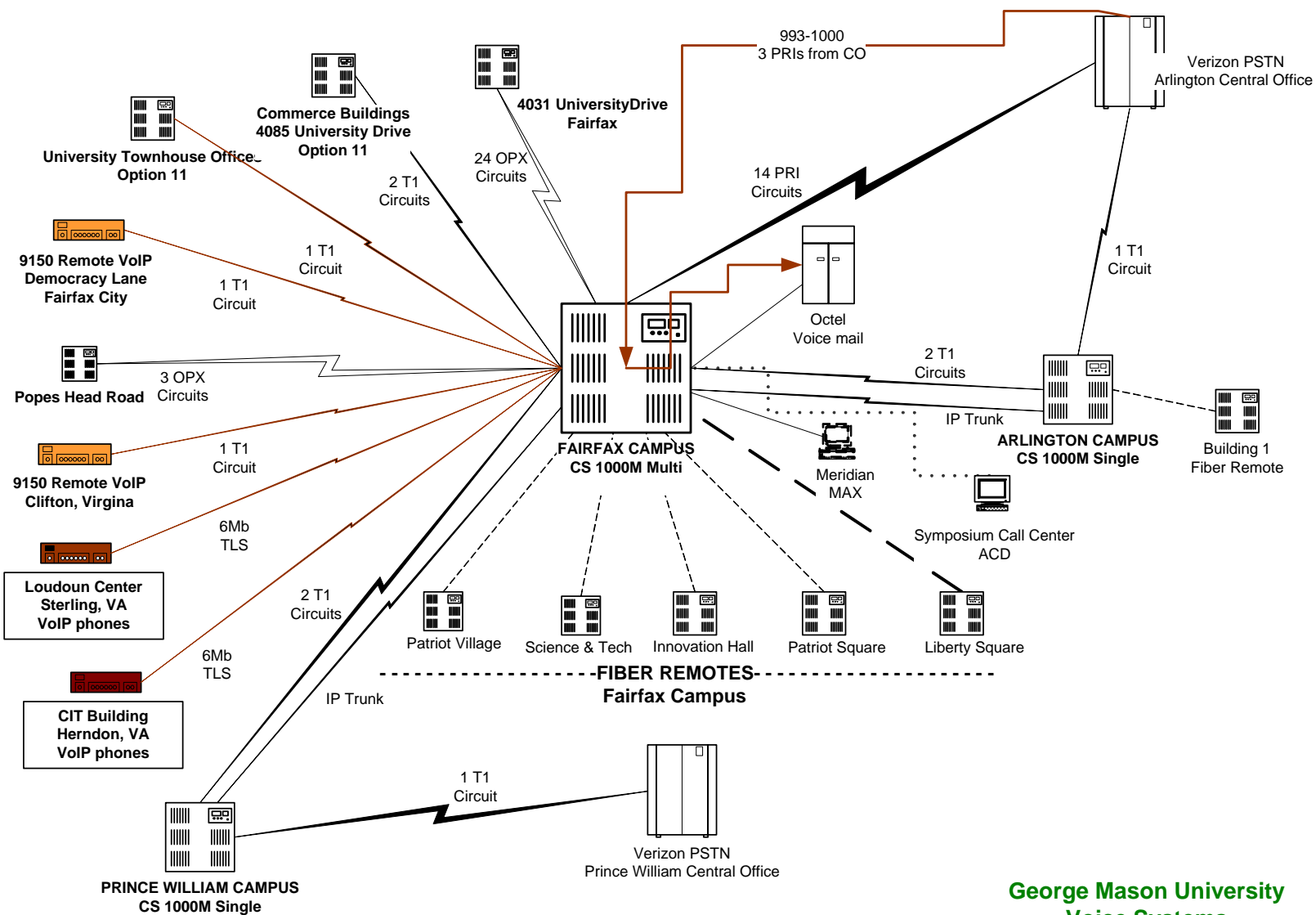
# VoIP Deployment: Plans, Issues, and Concerns

ACCS Spring Workshop  
April 20, 2006



# Environment

- Three campuses in Northern Virginia
- Eight smaller remote sites
- Approx. 30,000 students, 4000 of them resident
- 4600 faculty & staff (25 network & telecom)
- 143 buildings, most built after 1970
- PBX systems installed in 1995, upgraded regularly
- Solid data network, approx. 24,000 ports, over 90% of them switched 10Mb or better



**George Mason University  
Voice Systems**

Updated  
February 8, 2005

# VoIP System Architecture

- Nortel CS 1000M multigroup (was 81C)
- Succession 3.0 software
- Media Gateway cards for TDM interface
- Signalling Server handles call setup
- IP trunks between PBX's
- Nortel i2004 IP phones (not SIP yet)
- Nortel i2050 softphone for teleworkers
- Managed via OTM, Element Manager, and “classic” terminal functions

# VoIP Deployment

- 2000: Pilot eval
  - Failed due to integration issues
- 2001: VoIP trunk/gateway to 2 remote sites
  - Very successful, saved WAN costs
- 2004: IP phones installed at small remote site
  - Very successful, after initial missteps
- 2004 thru 2006: Approx. 35-40 total IP phones in use, including several softphones

# Problems Encountered

- Power outages: how much UPS time needed?
  - Our answer: Design for 45-60 minutes
- Phone moves: how much control needed?
  - Our answer: As much as we can get
- Security: how to protect PBX & servers?
  - Our answer: Firewall, private IP addresses
- Should phones & PC's use same network?
  - Our answer: No, must separate with VLANs

# Problems Encountered

- How to handle softphones?
  - Our answer: Limit with policy, & use SSL VPN
- Vendor support issues
  - Our answer: Study, discuss, fix, iterate...
- Organizational issues
  - Our answer: converge voice & data groups
- Performance monitoring – how?
  - Proposed answer: NetIQ monitoring system

# Next Steps

- June 2006: New research building slated to open on Fairfax campus – 90% VoIP
- Future of analog voice lines undetermined
  - Pull copper to new buildings? How much?
  - Are analog-IP gateways a viable solution?
- VoIP team formed to evaluate & refine support processes
- New chargeback structure must be developed
- Further deployment of VoIP TBD after this project

# Questions?

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