



Massachusetts Institute of Technology

# SIP.edu Architecture

Internet2 VoIP Workshop

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# Outline

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- SIP.edu motivation
- SIP.edu architecture
- SIP.edu components
- SIP.edu call flow



# SIP.edu

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- Goals
  - Grow SIP connectivity in Internet2
  - Increase value proposition for end-user SIP adoption
  - Promote convergence of voice and email identity
  - Low entry-cost means for campuses to...
    - Provide a useful service
    - Get their feet wet with SIP
- Means
  - Publishing “cookbook” with several alternative “recipes”
  - Obtaining corporate sponsorship and promotional pricing



# Why Phone NUMBERS?

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- Users should not be burdened with device addresses, when it's people they really care about
- Addresses should be mnemonic and empower enterprises to manage the identities of their users

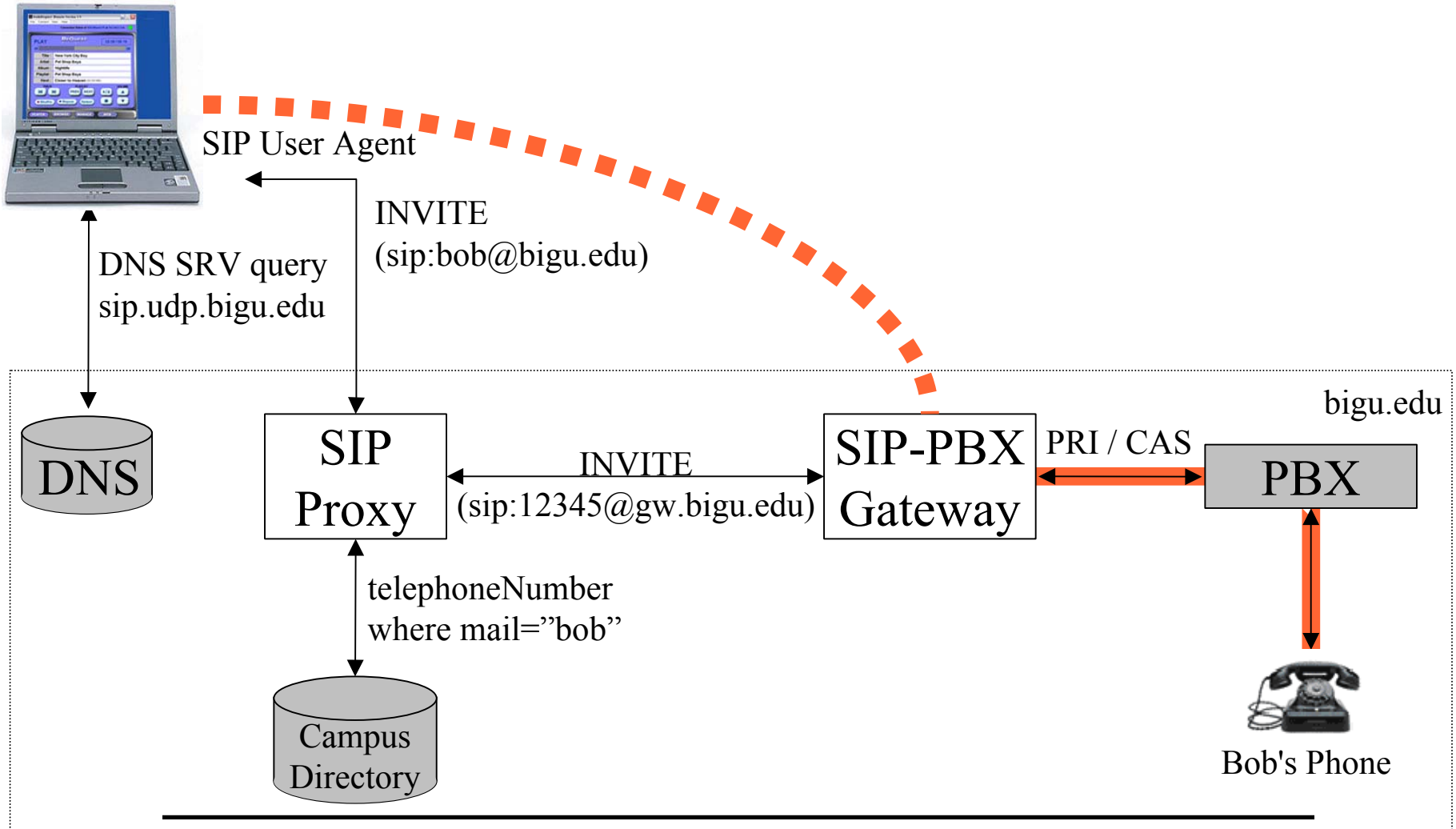
**sip:dbaron@mit.edu**

- It's time to put E.164 phone numbers behind us!
- A.G. Bell did not say:

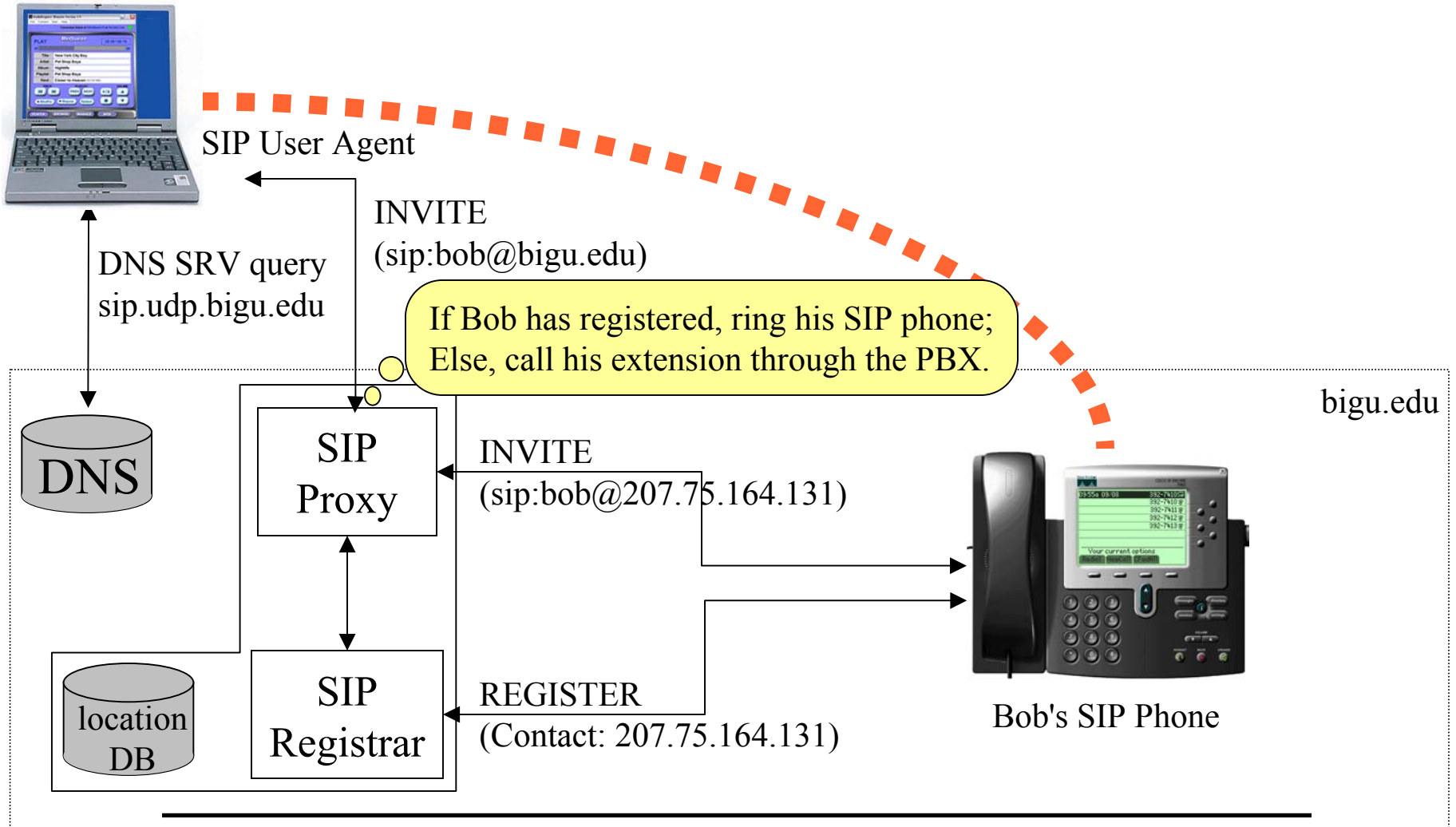
*“+1-617-252-1232, come here. I need you!”*



# SIP.edu Architecture (Phase 1)



# SIP.edu Architecture (Phase 2)



# SIP.edu Call Flow Example

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- SIP DNS lookup for MIT.EDU points to SIP proxy
  - Sends INVITE to bob@mit.edu to proxy
- SIP proxy checks MIT directory
  - Maps call to PBX extension – eg. 37669@mit.edu
- SIP proxy checks dial plan
  - Routes call to PBX gateway
- PBX rings phone

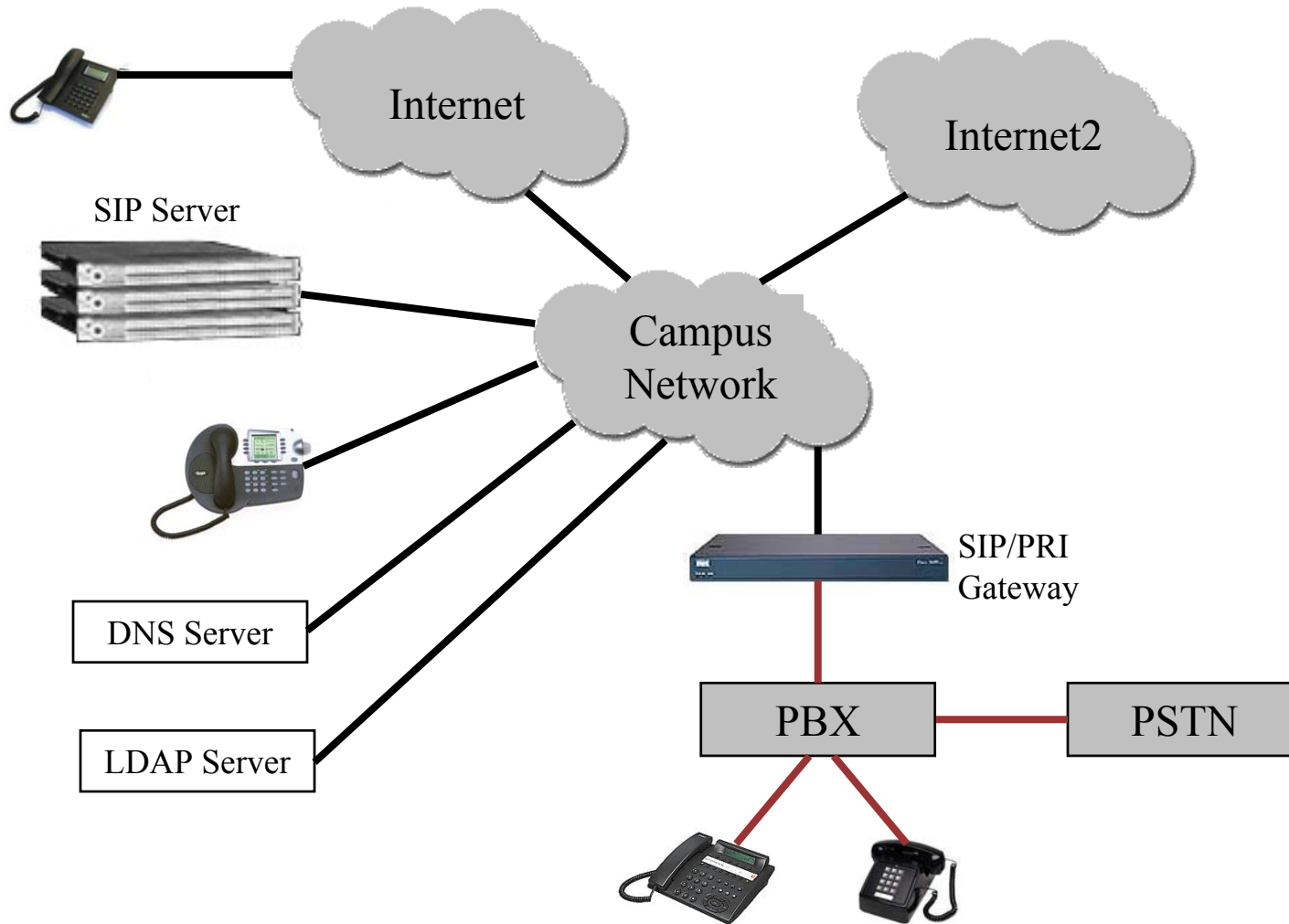
# SIP.edu Components

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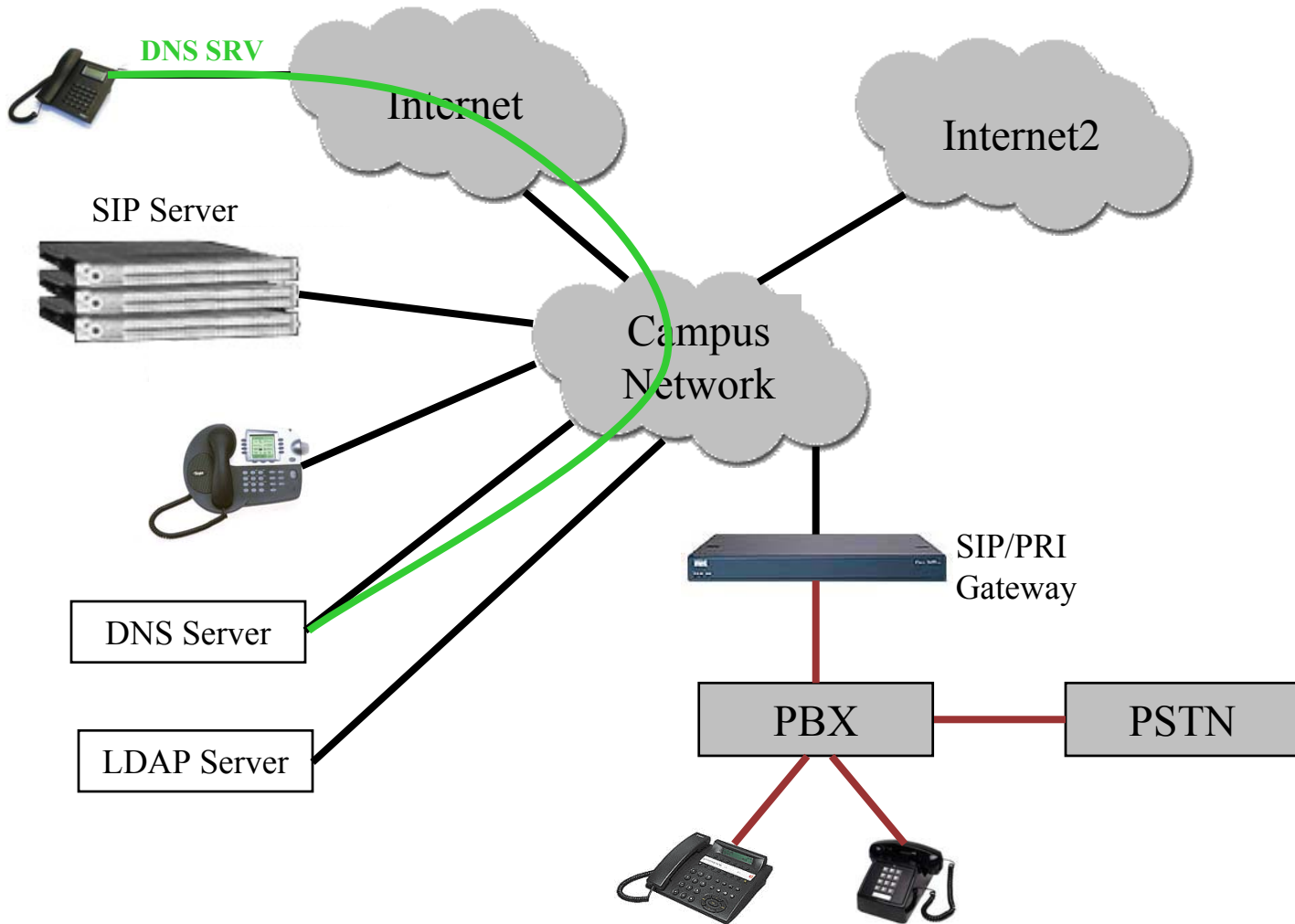
- DNS Server
  - Add SIP SRV records to existing servers
- SIP Proxy Server
  - Also acts as SIP registrar
  - Can support “aliases” for legacy phone numbers
  - Mimics campus dial plan
- LDAP Server
  - Has mapping of email to phone number
- SIP Gateway
  - Connects to existing PBX or Centrex
  - Could also connect to proprietary VoIP system



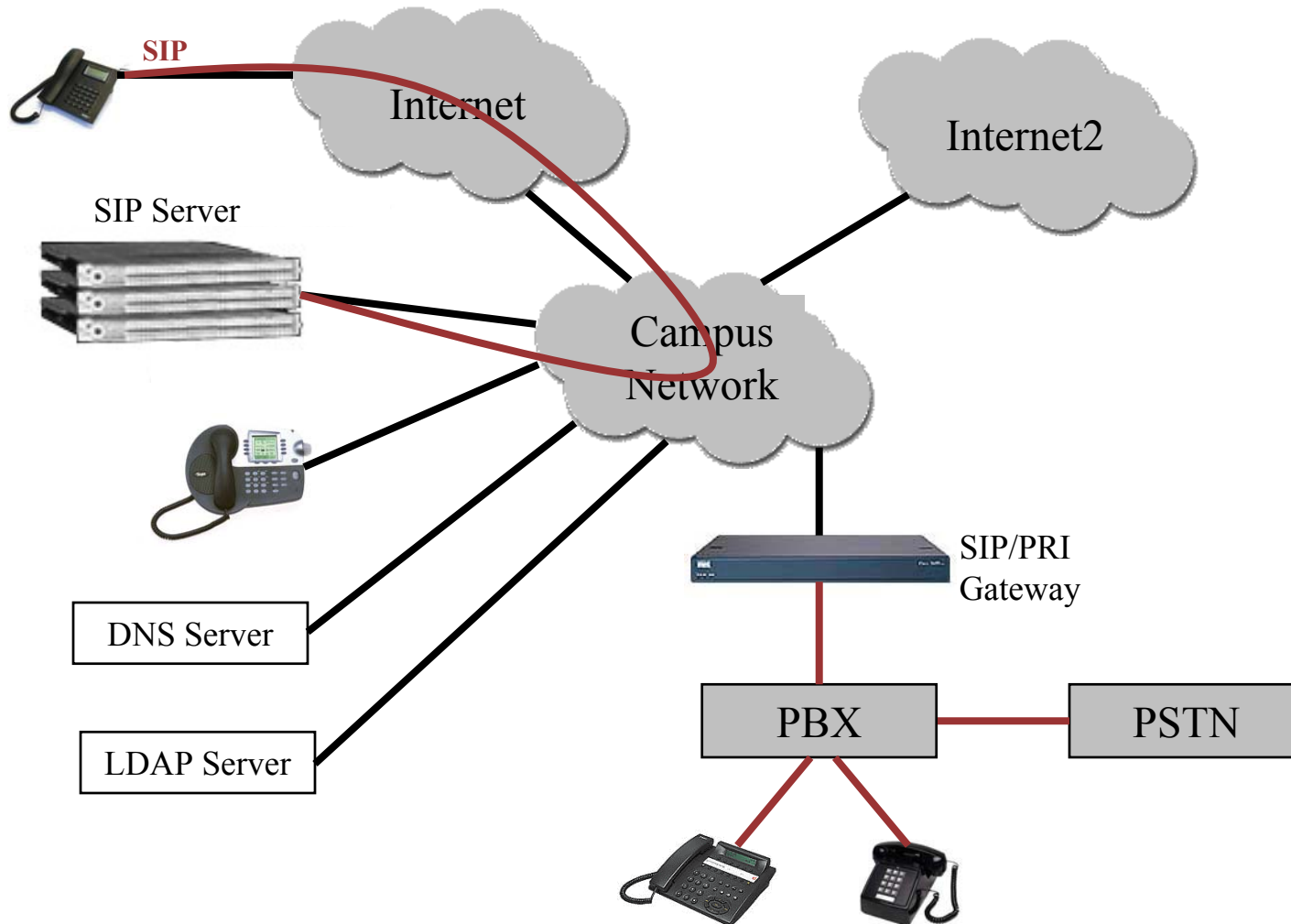
# SIP.edu Configuration



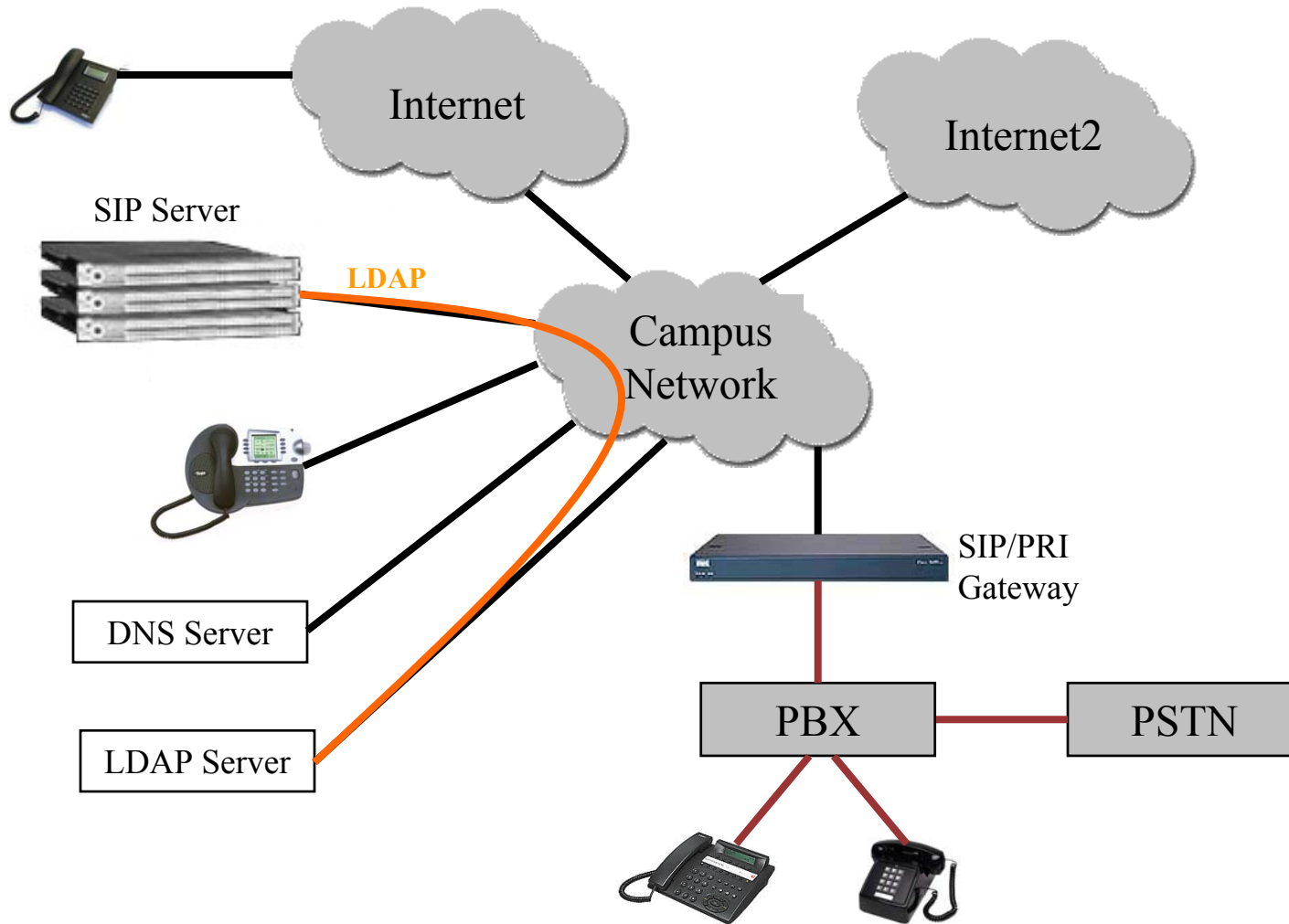
# DNS SRV Lookup



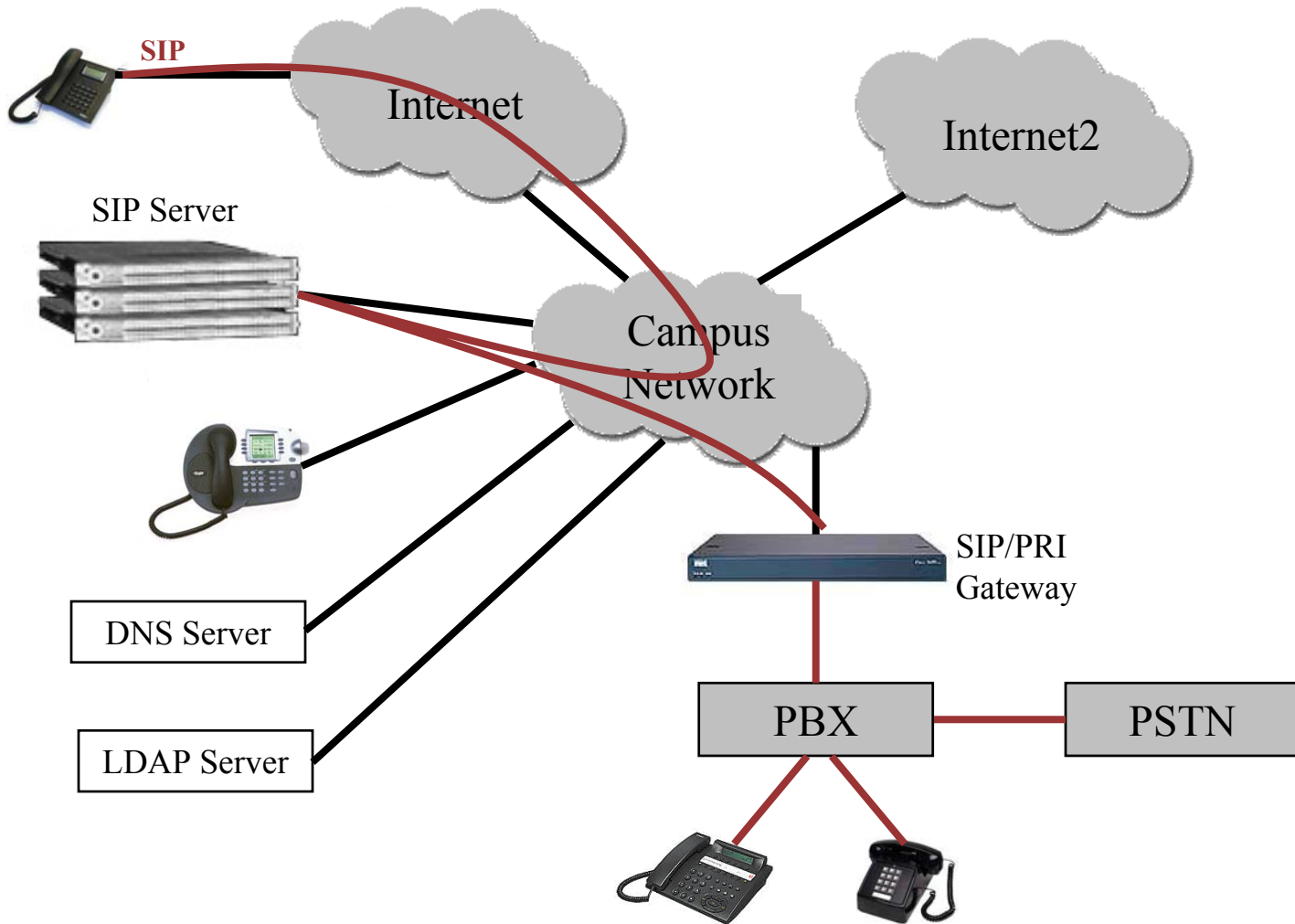
# SIP INVITE



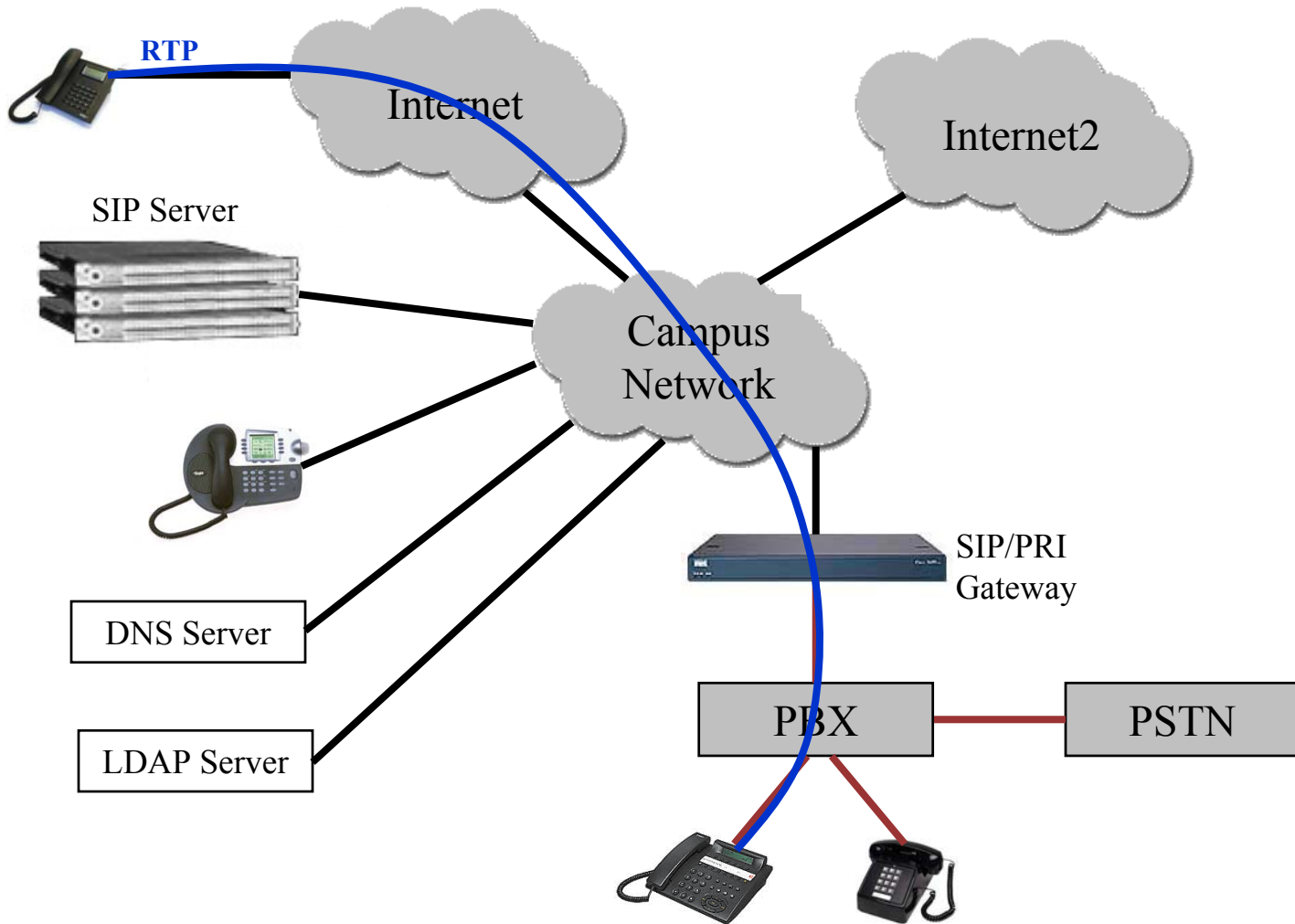
# LDAP Lookup



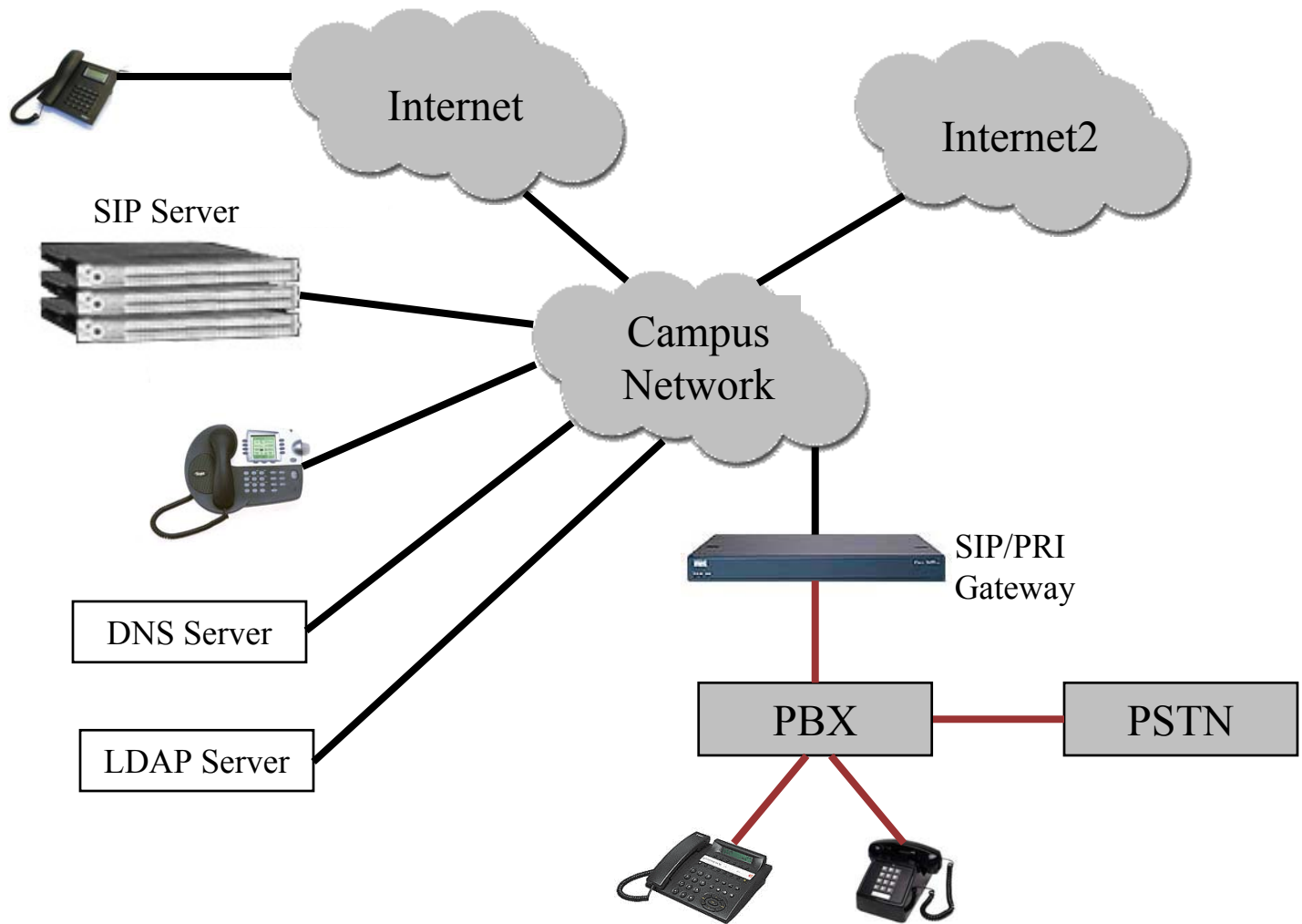
# Call Sent to PBX Gateway



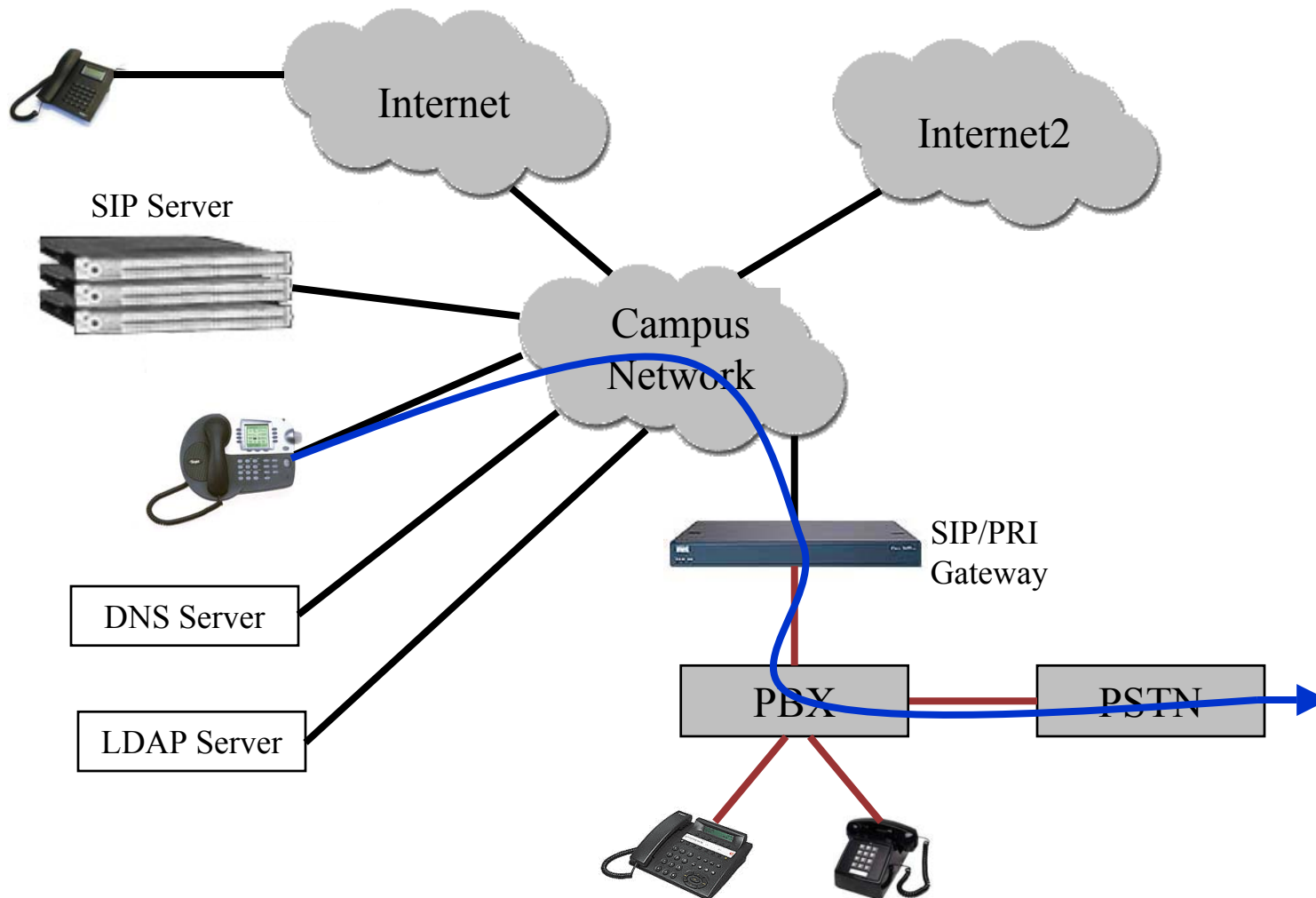
# Media Stream via Gateway to PBX



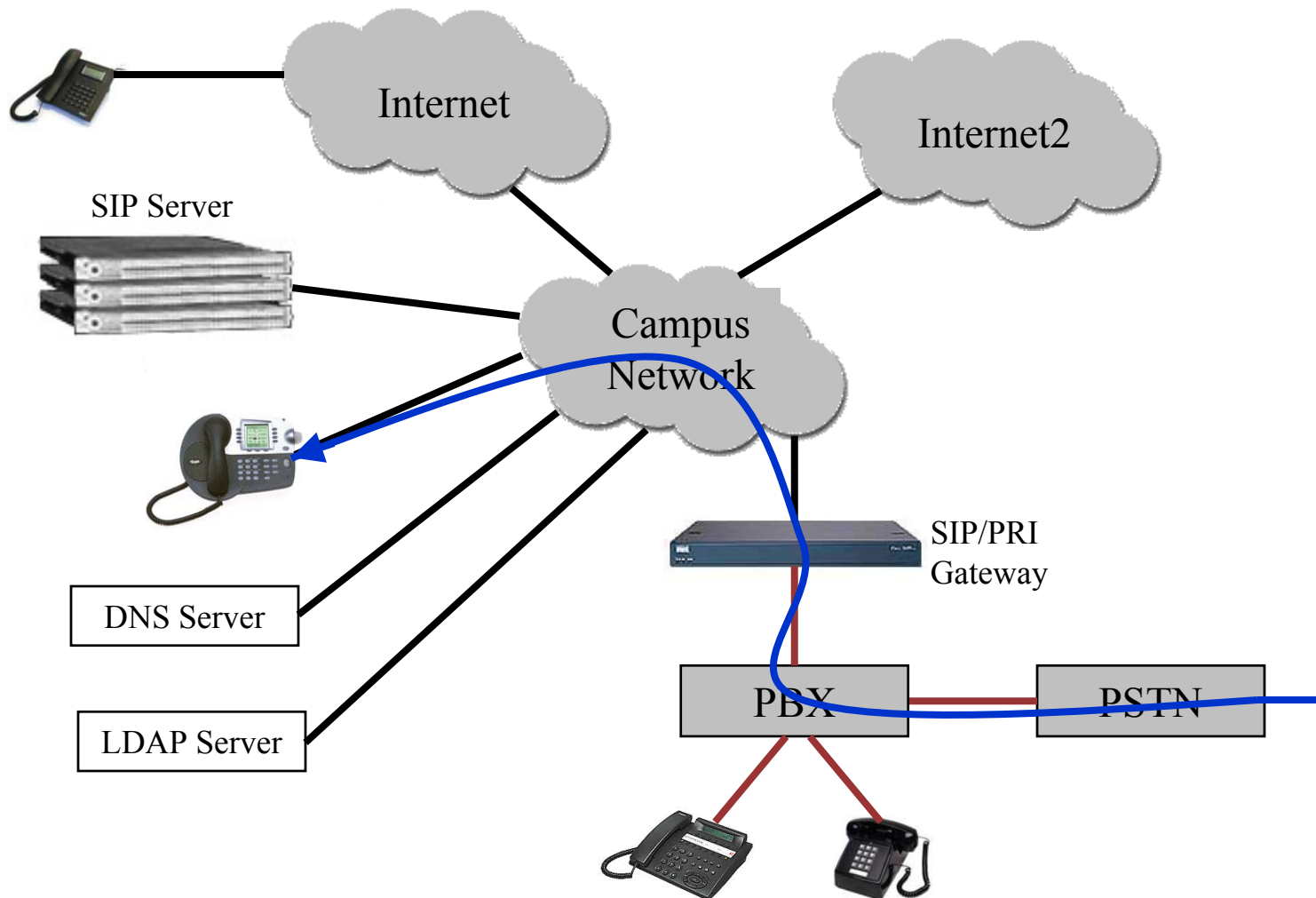
# SIP.edu Configuration



# SIP to PBX and PSTN Calling



# PBX and PSTN to SIP Calling



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# Questions?

