

Open Source @ RMU

Randy Johnson
Director, Technical Services
johnsonr@rmu.edu
412-397-6902
VOIP: FWD 781180 x 6902

Major Applications at RMU

- Asterisk PBX
- OpenBGPD Internet router
- OpenBSD pf packet filter
- RT request tracking system
- Network infrastructure (BIND, ISC DHCPD)
- Nagios monitoring system

Why Open Source

- Cost
 - Obvious benefit, but very significant
 - Spend money on hardware and bandwidth
- Efficiency
 - Bypass contract and purchasing issues
 - Instant procurement
- Control
 - Not at the mercy of vendor product cycle
 - Source code is the ultimate protection
- Flexibility
 - Open standards
 - Creative integration

Asterisk Open Source PBX

- Full-featured PBX system
 - Analog, VoIP, and PRI interfaces
 - Voice mail (with e-mail attachments)
 - IVR capabilities (menu trees, etc.)
 - Asterisk Gateway Interface (AGI)
 - Runs on Linux, Solaris, Mac OS X, *BSD
- Implemented so far
 - 70 analog extensions for dorm rooms
 - 25 IP phones for IT staff
- Coming soon
 - 240 more analog extensions
 - 18 more IP phones

IP Telephony

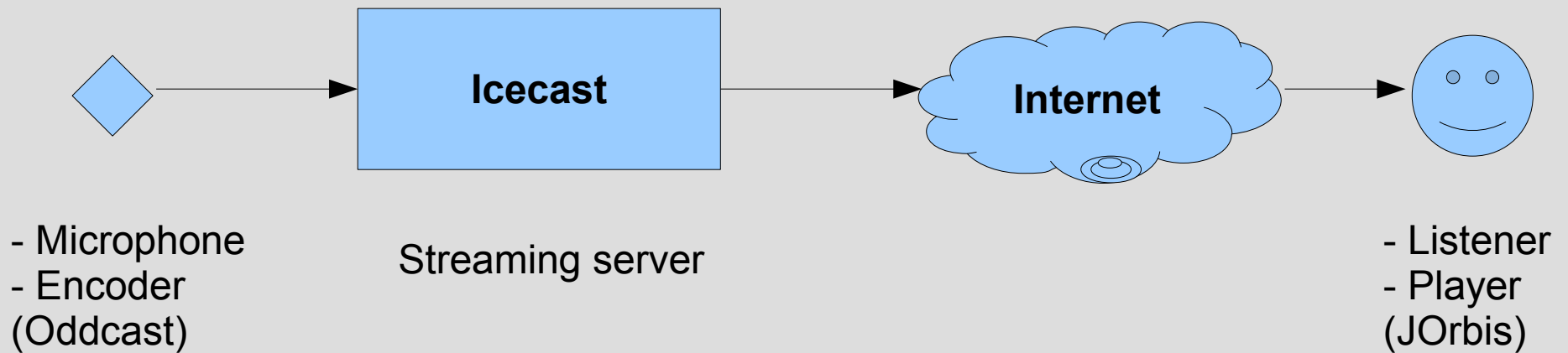
- IP-to-PSTN calling
 - Similar to Vonage
 - VoicePulse IP trunks in Asterisk PBX
 - All outbound calls from IT go out IP
- IP-to-IP calling
 - Similar to Skype
 - Based on 100% open standards (SIP)
 - Free calling to PC or IP phones anywhere
 - Free World Dialup: 781180
 - Gizmo Project: robertmorrisuniversity

WorldVistA Conference

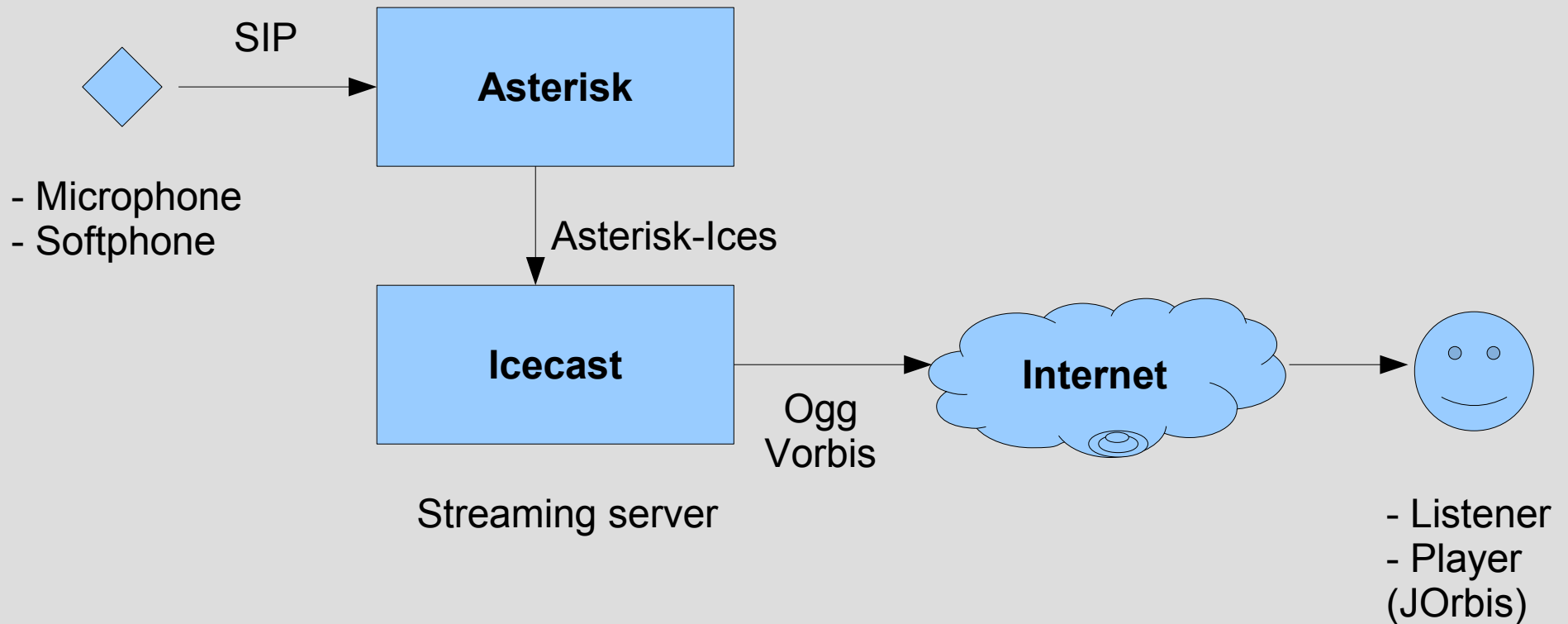
- Call-in conference rooms
 - Free IP call in via FWD or Gizmo
 - Two-way audio in breakout rooms
 - Breakout audio also streamed live
- Streaming audio
 - Icecast2 streaming media server
 - Asterisk Ices application
 - Ogg Vorbis open source audio format
 - Captured audio files available for later download

Audio Streaming

(International Room – Plenary Sessions)

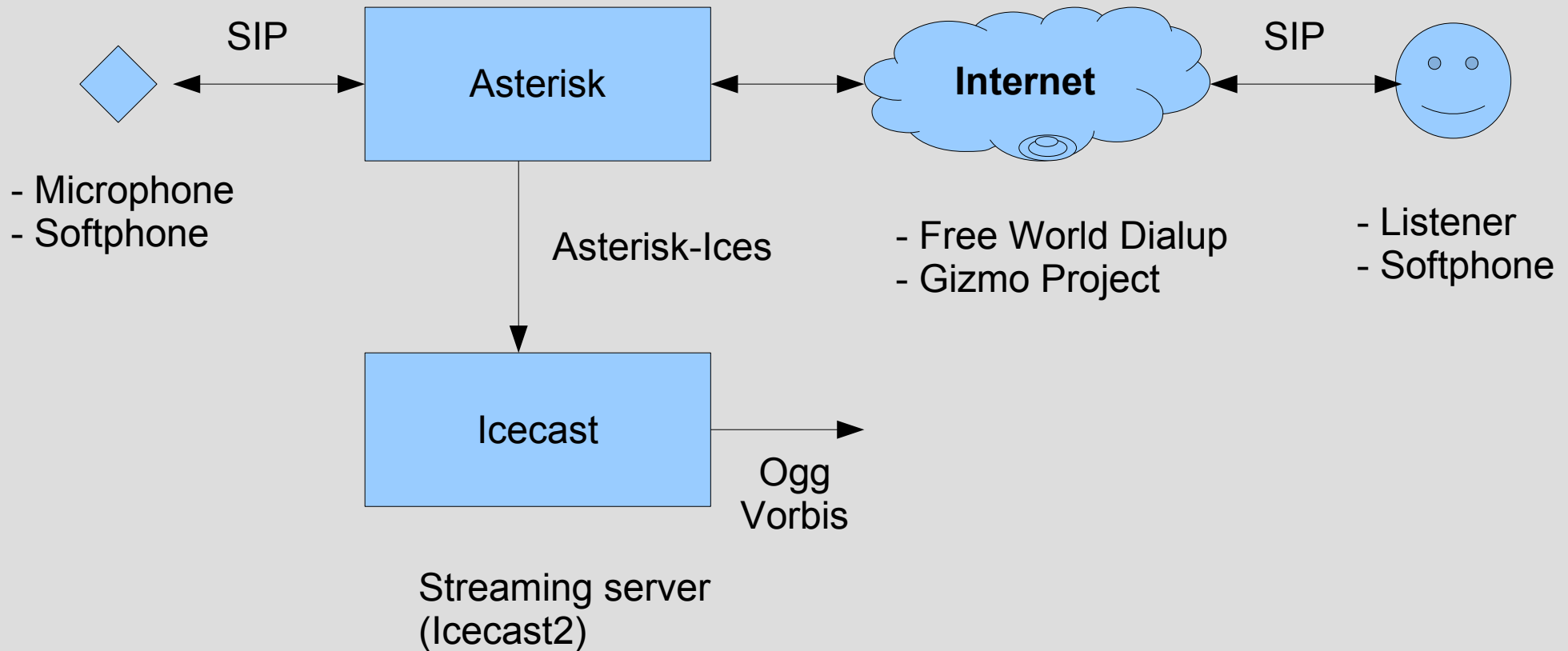


Asterisk Audio Streaming



Asterisk VoIP Call-in

Conference Room



Open Source / Open Standards

- Asterisk case study
- Application interface API
 - Example: app_ices which is streaming our audio
 - Published API is the key factor
- Asterisk Gateway Interface (AGI) API
 - Just like of CGI for call control
 - Anything goes
 - Could be implemented by proprietary system
- Conclusions
 - Standards and open APIs mean more to users
 - Open Source projects tend to follow standards

Open Source Adoption Curve

- Apache HTTP Server case study
- 1996
 - People paid good money for web server software
 - Netscape Enterprise, NaviServer, O'Reilly, etc.
- 1998
 - People paid for “commercial” Apache (Covalent)
- 2006
 - Commercial software includes Apache
 - Oracle Application Server, IBM WebSphere
- Conclusion
 - Core functionality best developed using open source development models