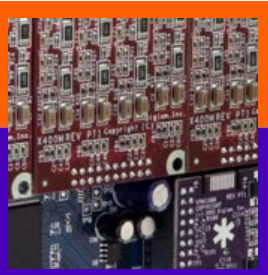


Open Source Telephony:
Cheap, Fast AND Good!

Kevin P. Fleming

Senior Software Engineer - Digium, Inc.

kpfleming@digium.com

http://www.digium.com

(256) 428-6012

digium

Asterisk was created by me?

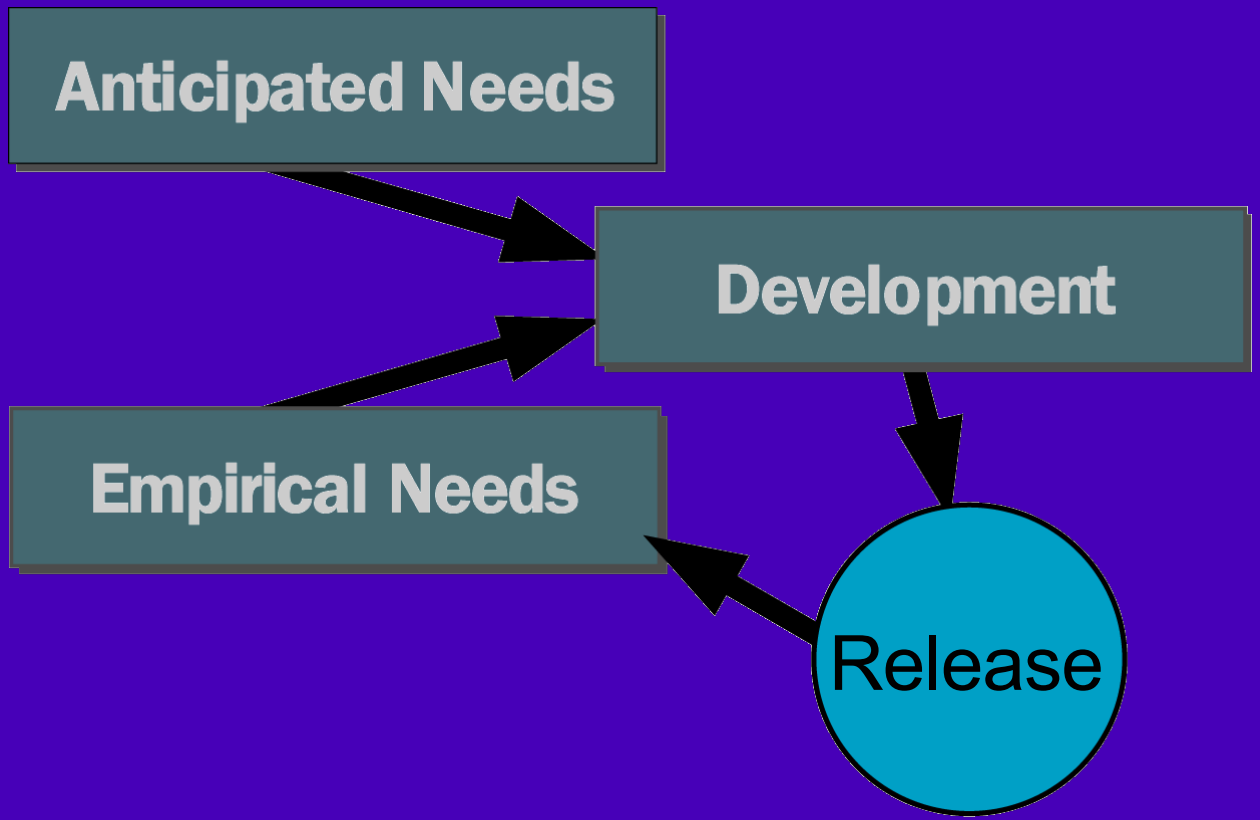
- Contrary to the TMCNet website, I did not create Asterisk (although there are days I wish I had!)
- Asterisk was created in 1999 by Mark Spencer to fulfill a need he had for a telephony system for his small business
- Since late last year, I have been the co-maintainer of Asterisk (and related projects) with Mark

digium

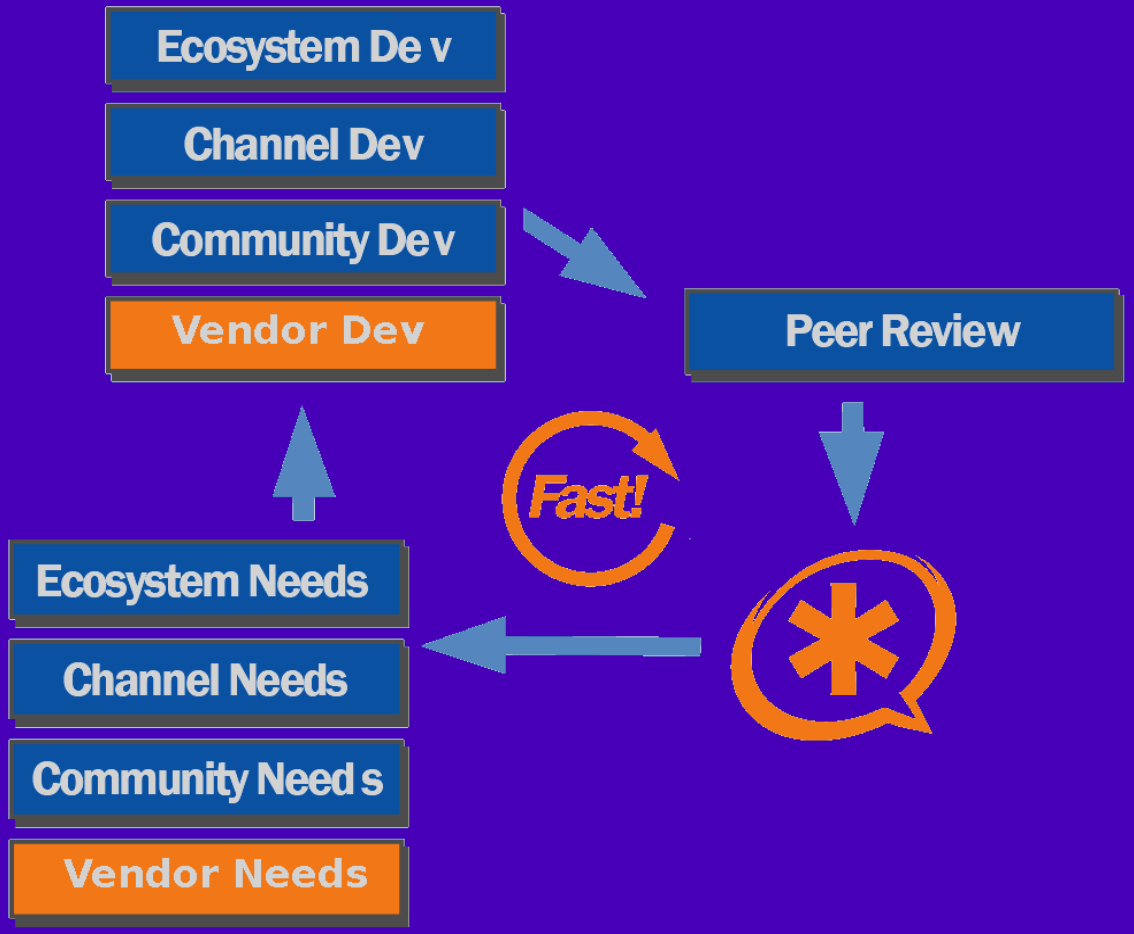
Cheap, Fast AND Good?

- The old maxim says you can have only two...
- But open source telephony software is the exception that proves that rule
- OSS Telephony is cheap to purchase and operate
- OSS Telephony is developed quickly
- OSS Telephony is on par with (or better than) proprietary solutions in nearly every aspect

Standard S/W Development



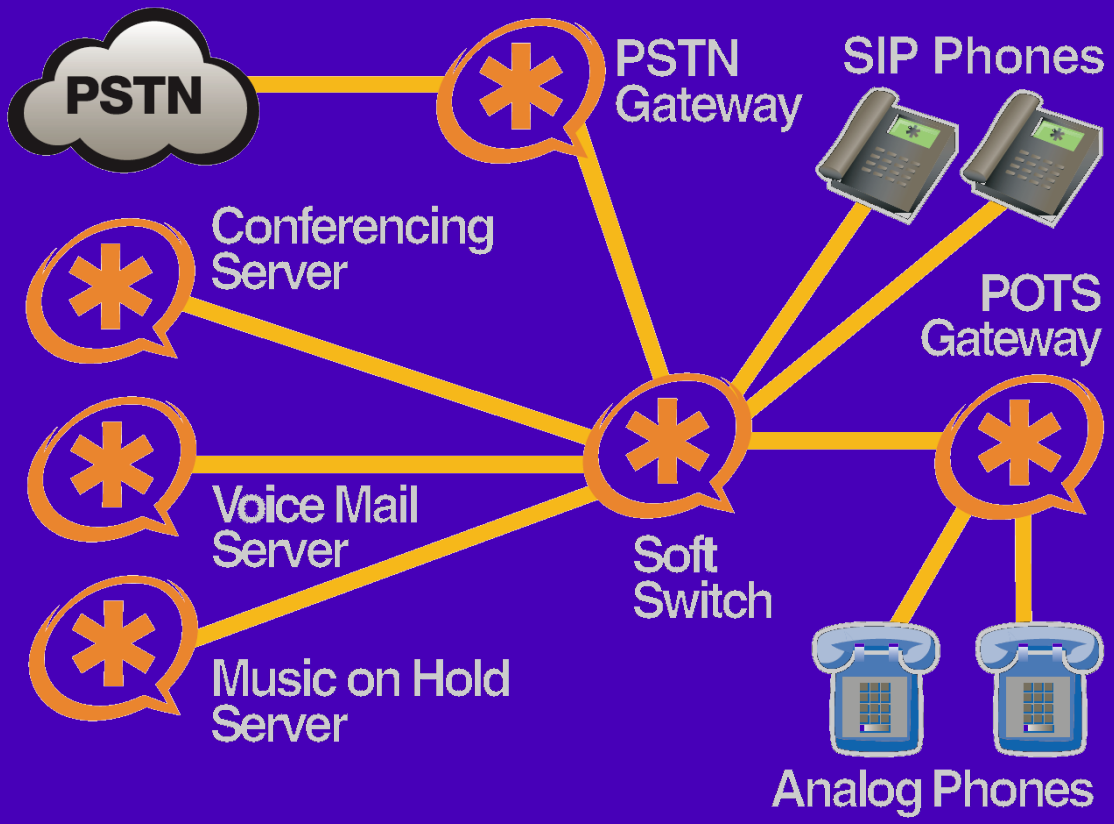
Open Software Development



Advantages of Open Source

- Economics – lower costs to try and implement
- "Free market" analogy:
  - Minimal central planning
  - "Community" of self-interested developers
  - Necessity is the mother of invention
  - Features and fixes follow community (market) needs
- Quick time to market, short development cycle
- User Transparency results in quick fixes to problems
  - "Given enough eyeballs, all bugs are shallow" *(Eric S. Raymond)*
- Open Standards
- If supporting company dies, software lives on

Where Open Source Fits



Asterisk as a Telephony Platform

- Supports every significant TDM and VOIP protocol
- Supports every significant narrow-band voice codec, and some video codecs
- Provides a number of integration interfaces for application development, including the dialplan itself, the Asterisk Manager Interface, the Asterisk Gateway Interface, the External IVR interface, and others
- Asterisk has become a platform for new and innovative applications to be developed and deployed

digium

Asterisk as an application development platform

- Contrary to popular opinion, Asterisk is **NOT** a PBX product
- Instead, Asterisk is a telephony toolkit that is most commonly deployed as a PBX, but can be used in may other (very creative) ways
- Applications can be developed to run on (or connected to) Asterisk in any language you wish, with high-level (CGI-style) or low-level (API) interaction
- Building applications on Asterisk allows for more flexibility and interoperability than any commercial development platform

digium

UnwiredBuyer

- eBay automated bidding system
- 'reverse IVR' that calls bidder when auction is nearly ready to end
- Allows bidder to turn a web auction into a 'live' auction with instant bidding and response
- Required a new IVR interface technique to be added to Asterisk to support its requirements
- Since deployment, has had dramatic impacts on the bidding process, including more successful bids and higher sale prices
- Purely VoIP... Asterisk and SIP to PSTN carriers

University of Pennsylvania

- Identified Asterisk as a potential platform to replace their aging Centrex-connected Octel voicemail system
- Could only justify the transition if the new system provided 'unified messaging' (voicemail, email and FAX)
- Asterisk did not provide that, so...
- Sponsored a full time developer to add IMAP storage integration to Asterisk's voicemail system and worked with us to develop it
- Have just begun deployment, with plans to migrate nearly 30,000 users

Development Speed (pre-2006)

- Source code was managed using CVS
- At most there were six (6) committers managing the source tree, with some of those only working in small areas
- At the time Asterisk 1.2 was released, the CVS repository (after being converted to Subversion) contained just over 7,000 revisions
- Long-term development of projects happened outside the main repository, and was not transparent to the community

Development Speed (post-2005)

- As of yesterday, the Subversion repository for Asterisk contains nearly 40,000 revisions (although 20% of those are 'automated' revisions)
- Nearly 30 committers with essentially unrestricted access
- 'developer branches' allow the community to participate as developers work on long-term projects
- The speed of development continues to increase as we add more community (and paid) developers and they get more familiar with our development practices

Quality Management

- After Asterisk 1.0 was released, there was only **one** person with the responsibility of backporting bug fixes from the development branch to the release branch
- After Asterisk 1.2 was released, this process was changed entirely
- Now bug fixes must be committed to the release branch before any other branch
- This has resulted in nearly four times as many bug fixes being applied to the Asterisk 1.2 branch as were applied to the Asterisk 1.0 branch

Security Issues

- As with all VoIP products (especially connected to public networks), security is an important concern
- In the last year, Digium has received four important security vulnerability reports for Asterisk
- Each of them was addressed and a release made within a few days

'Fast' is relative though...

- We wanted to implement a 6-month release cycle to get Asterisk 1.4 released, but we are currently in month number 9 and have not yet produced a beta release
- Many new features have been added, some very quickly after they were proposed, but yet...
- Many features languish in our issue tracker because none of the core developers are personally interested in them
- As the developer community grows, though, it is more likely that someone will be interested enough in a new feature to 'push' it through the process

Asterisk 1.4 Highlights

- ☒ New build system
- ☒ Shared Line Appearances
- ☒ T.38 FAX Passthrough
- ☒ H.264 video support
- ☒ Multithreaded IAX2
- ☒ Follow-Me application
- ☒ Reduced memory consumption
- ☒ Voicemail IMAP support
- ☒ Proper RFC2833 DTMF support
- ☒ ... and many more

digium

Cheap, Fast AND Good!

- The old maxim says you can have only two...
- But open source telephony software is the exception that proves that rule
- OSS Telephony is cheap to purchase and operate
- OSS Telephony is developed quickly
- OSS Telephony is on par with (or better than) proprietary solutions in nearly every aspect



Thank You!