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# VoIP Transparency: Asterisk and the Economics of Monitoring

Presented By

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# What Does It Mean to Monitor?

## New Oxford American Dictionary:

monitor |ˈmänətər|

verb [ trans. ]
observe and check the progress or quality of (something) over a period of time; keep under systematic review

Asterisk definitely qualifies as *something*.

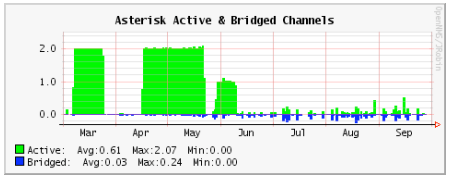
# Observe

Implies that we have a way to “see” inside Asterisk.

- ✗ **Scrape output of *asterisk -rx ‘core show calls’***
  Gets the job done, but prone to error and breakage between Asterisk versions
- **Asterisk Manager Interface (AMI)**
  Meant as a programmatic interface and works well, but highly domain-specific
- **Simple Network Management Protocol (SNMP)**
  Widely known and implemented, but support in Asterisk is still in progress.

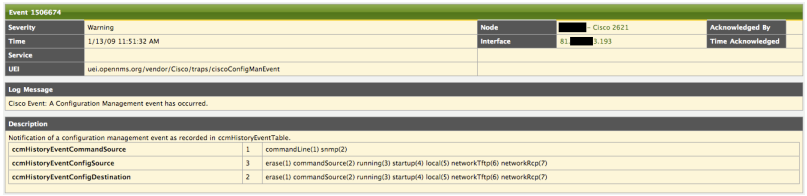
# Check

## How can we recognize patterns in observed data?




Plot values on a chart and manually verify

Threshold values as we collect them; create alarms when exceeded




Receive unsolicited notifications (e.g. SNMP traps) from monitored devices

# Progress or Quality

In the context of Asterisk, these usually refer to *call progress* or *call quality*, but *quality* in particular has a broader meaning in the context of monitoring.

- Synthetic Transactions -- originate call via AMI, measure post-dial delay, compare against SLA
- Collect Data -- Counters (calls completed), Gauges (users in a MeetMe conference), use for fault management and capacity planning
- Track call queue and agent statistics in support of staffing decisions. Set a reasonable *wrapuptime*!

# Over a Period of Time

Implies time-stamped storage of collected data samples and events.

- RDBMS works well for storing events. Plan big if you have many and/or busy systems.
- Samples best stored in some round-robin format, preferably one with a configurable roll-up schedule
- Regulatory / SOX issues come into play. Don't try to use your management platform as a data warehouse!

# Systematic Review

Key to the success of any network management project. Time and money spent on implementation can run into the millions of USD. Why?

- It's a hard problem. If it were easy, I wouldn't be here.
- Commercial management software is very expensive.
- Consulting in this realm runs thousands USD per day.
- The initial investment is only the beginning.

# Systematic Review (cont'd)

- Trained, competent staff is essential even if your vendor provides support!
- Expect to dedicate at least one person nearly full-time
- As the character of your operations changes, the management system will need to evolve as well.
- As your environment grows, your management system may be strained. Careful planning helps, but runaway success happens!

# That's Nice About Monitoring...

How about some good news on the Economics part?

- Asterisk is almost always cheaper to monitor than legacy TDM and hybrid-IP PBXes!
- The open, freely redistributable nature of Asterisk lowers the bar: no API licensing fees, cheap to have a lab full of it
- Just as voice is converging onto IP and undergoing an open-source revolution, so is network management
- Be mindful of open-source (OSD) vs. open-core software

# Who Was That Guy?

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