



Measuring NTP from multiple vantage points

Subhead

Why shortfalls in monitoring

- Particular ISP outages
- Routing problems affecting a few customers
- Multicast systems
- Pool doesn't have a monitoring point in Asia

What do we know: experience of an NTP operator

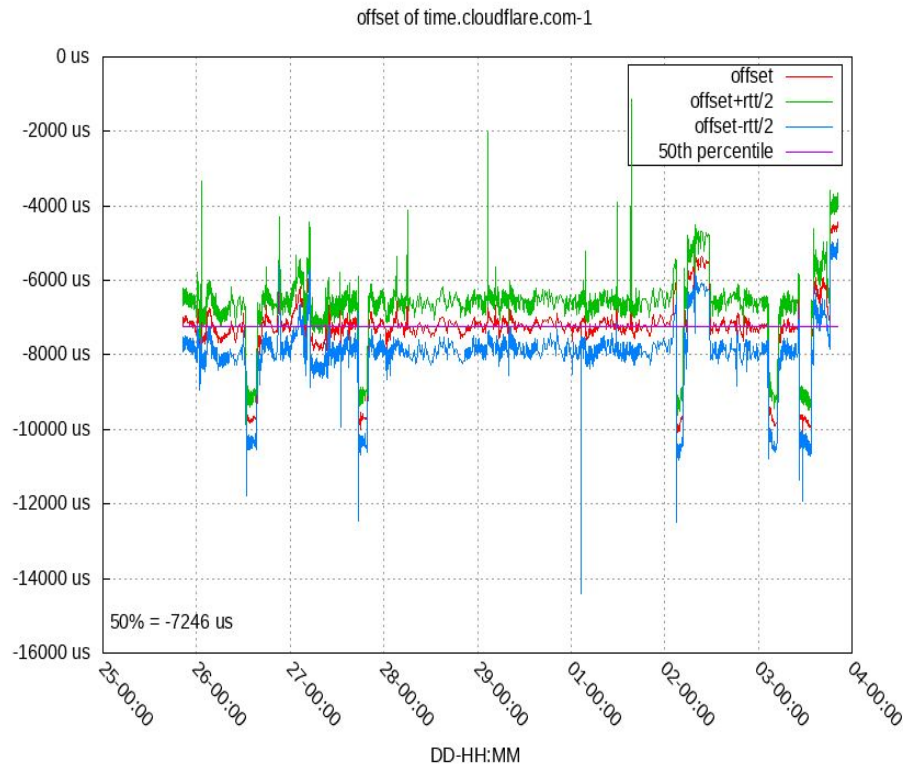
- Can see outages of upstream servers (potentially yours)
- Reports of persistent extreme latency useful
- Can't do much about offset
- Do know that there are offset problems based on a few vantage points

Crowdsourcing measurements

- Doesn't work to well
- Human intensive effort to gather, need automation
- Most measurements look fine
- Hard to spot problems in face of outliers (hence median filtering)

Positive signs

- Measurements do show abnormalities
- Monitoring can find them



Solutions

- Datacenter/server out to other servers
- Standard reachability measurement format
- Aggregation automatic
- Filtering measurements to see important trends

Open problems

- How to process data? What information matters?
- Client networks vs server networks
- Diagnosing offset
- Analysis methods