DNSCCM

Progress Report - Oct 2011

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DNSCCM

- Background
- Progress report
- Demo
- Future plans

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What is DNSCCM?

- DNSCCM is software tool:

  DNS Configuration, Control & Monitoring

- An implementation of NSCP:

  Name Server Control Protocol

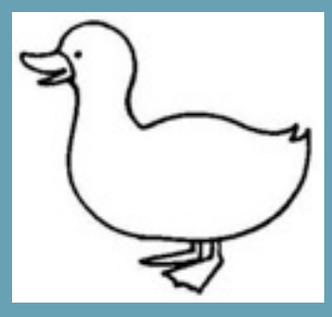
What is NSCP?

- Single cross platform, cross implementation control protocol for name servers
- Rationale? DNS - high availability is desirable

Genetic diversity

Operational complexity

Mitigate this with NSCP



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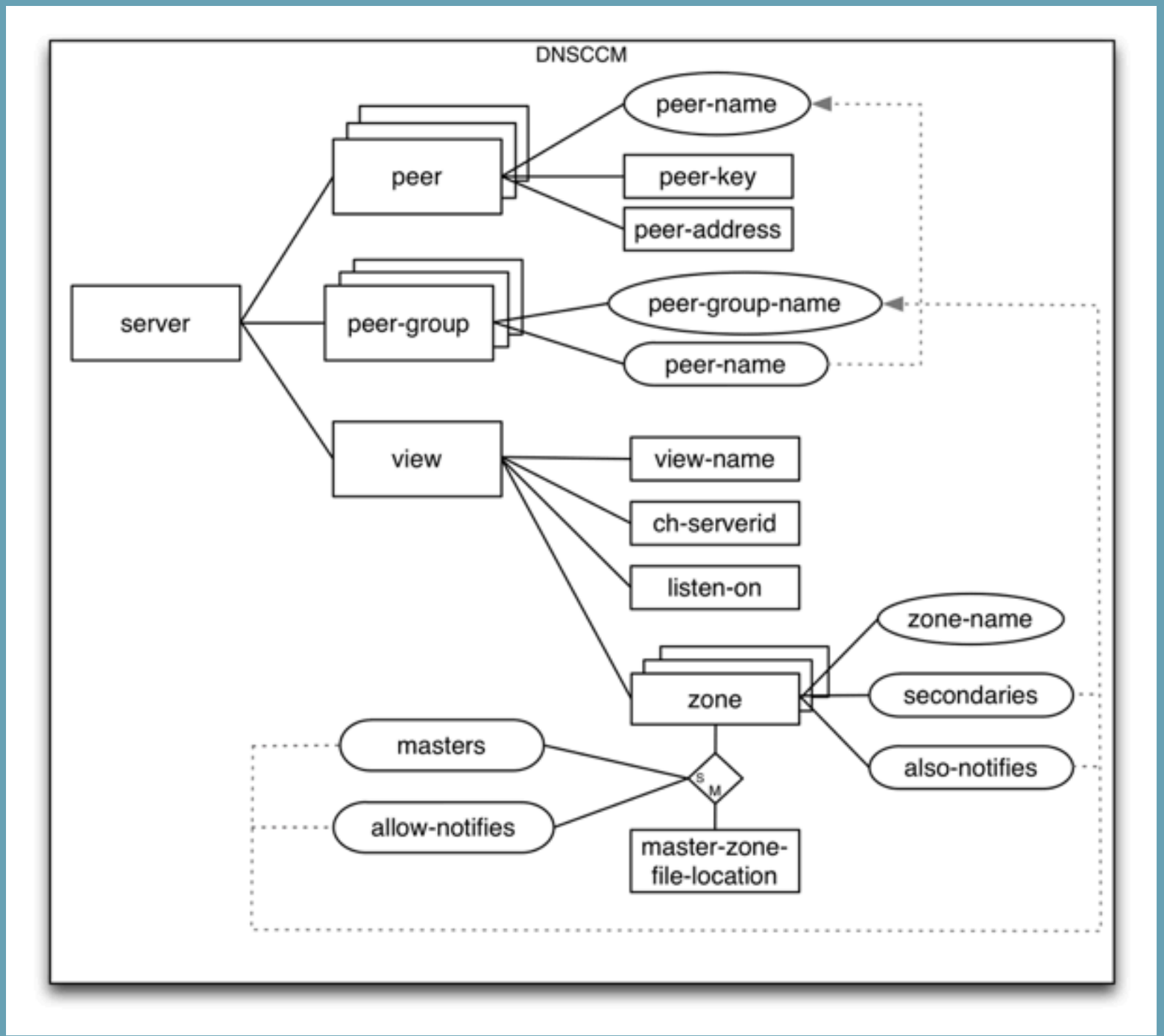
Status of NSCP?

- 2008: IETF DNSOP WG felt there was a clear need for a common DNS (SEC) name server management and control system.
- 2011: Requirements RFC6168
- 2011: Internet drafts for NSCP (currently version 2)
  - Data model defined in YANG
  - NETCONF

YANG data model

- DNSCCM
  - (NSCP V.3)

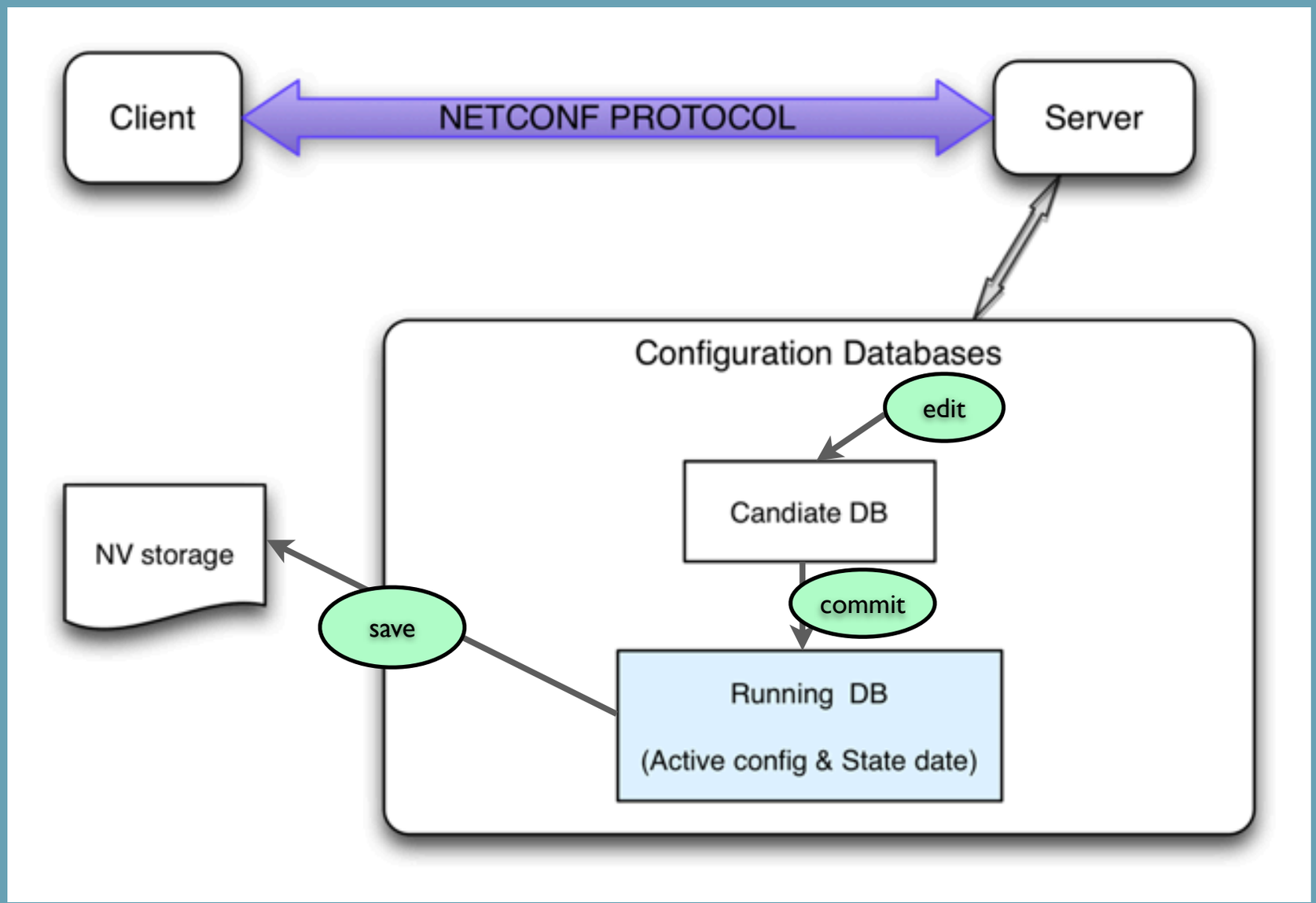
- rpc calls
  - server-status
  - stop-server
  - reload-server
  - restart-server
  - stop-server



NETCONF

- secure (ssh)
- readable (xml)
- extensible

- Database locking
- Confirm/commit
- Validation



What is DNSCCM?

- An implementation of NSCP
  - Developed by Sinodun with support of NLnet Foundation small project grant.

- NSCP is a slow burn
  - Build it and they will come.....

- Implementations pre-date NSCP
  - can this be made to work?

Yuma Tools

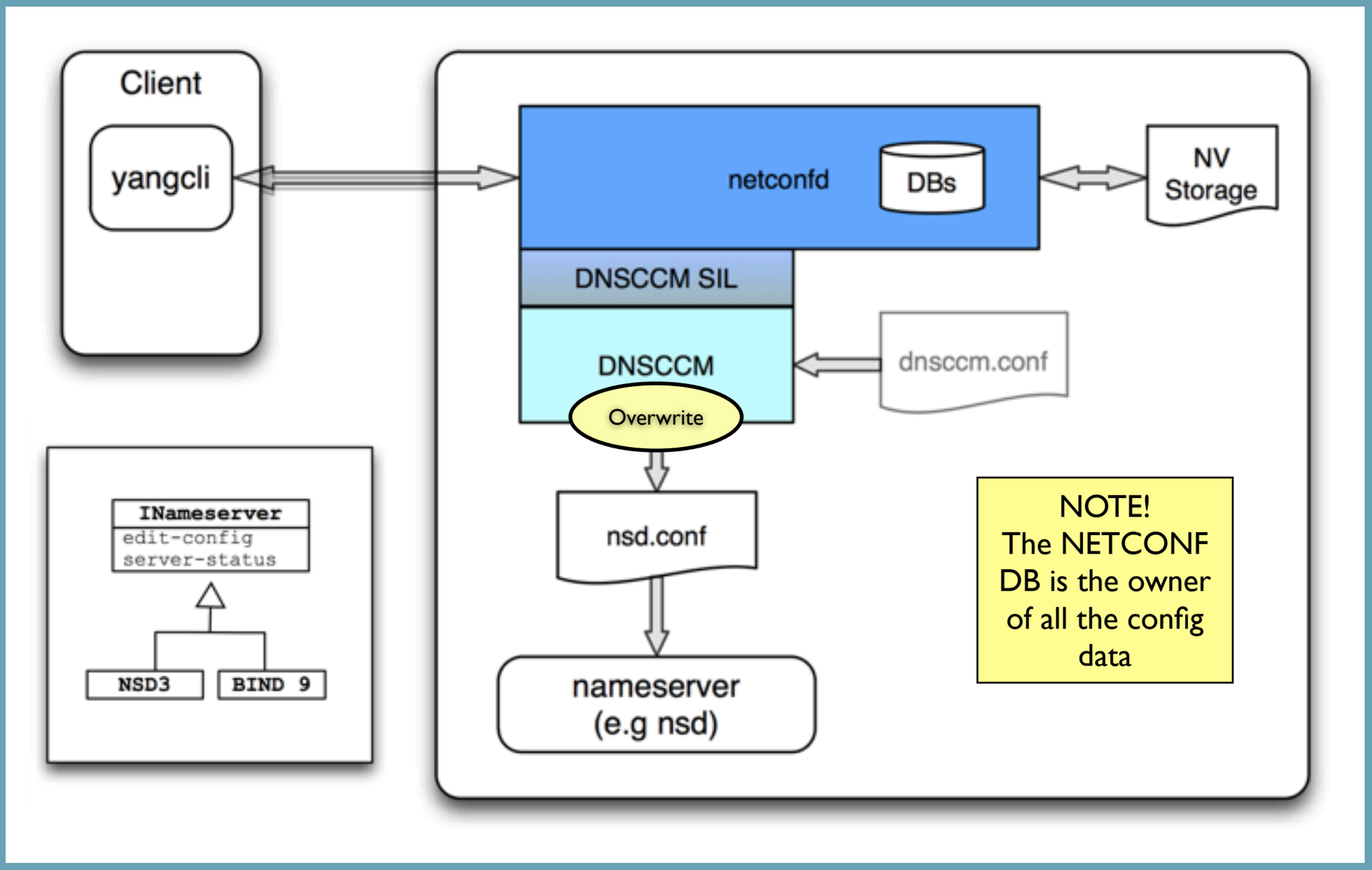
- DNSCCM is utilizing Yuma tools
  - Open Source YANG based toolkit for NETCONF
  - Andy Bierman
    - a NETCONF server called netconfd
    - a NETCONF CLI client called yangcli
    - thin client for OpenSSH/NETCONF communication
- Implements many NETCONF capabilities:
  - running/candidate
  - confirm/commit

Status of DNSCCM

- Version 1.0
  - Authoritative only nameserver
  - NSD 3 and BIND 9
- Prototype

  - Convey concepts of device management for nameserver
- Alpha release in Dec/Jan
- Version 2.0...

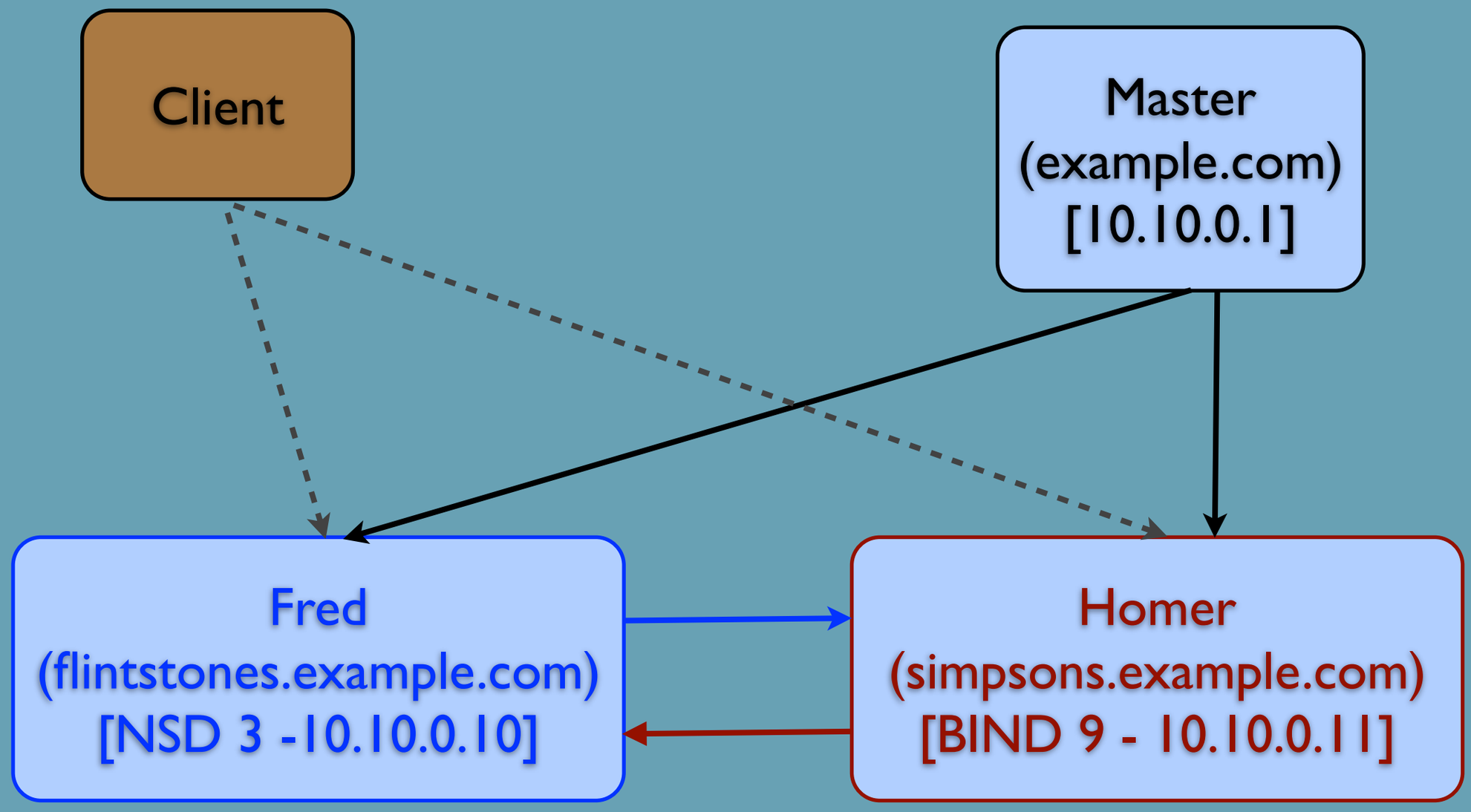
Architecture



Demo

- Basic setup (init from NV storage)
- Manual editing of config
- rpc calls
- Zone creation

Demo set-up


Client
Master
(example.com)
[10.10.0.1]
Fred
(flintstones.example.com)
[NSD 3 -10.10.0.10]
Homer
(simpsons.example.com)
[BIND 9 - 10.10.0.11]

Future work

- Client
  - Customise YANGCLI
  - GUI/Web front end (group management)
- Data model
  - Extend data model
  - Conformance
    - ‘Standard’ model (Features/Deviations)

Future work

- DNSCCM implementation
  - Other nameservers (BIND 10)
    - User customization of rpc implemenation
      - this would allow, for example, the user to wrap the nameserver so that OSPF could be used for clustering

Lessons Learned

- NETCONF
  - powerful but verbose syntax & assumes nodal edits
- YANG - some limitations
- YUMA Tools:
  - no Features (yet)
  - No Auto tools (yet)

And Finally...

Appreciate feedback and requirements:

dnsccm.org

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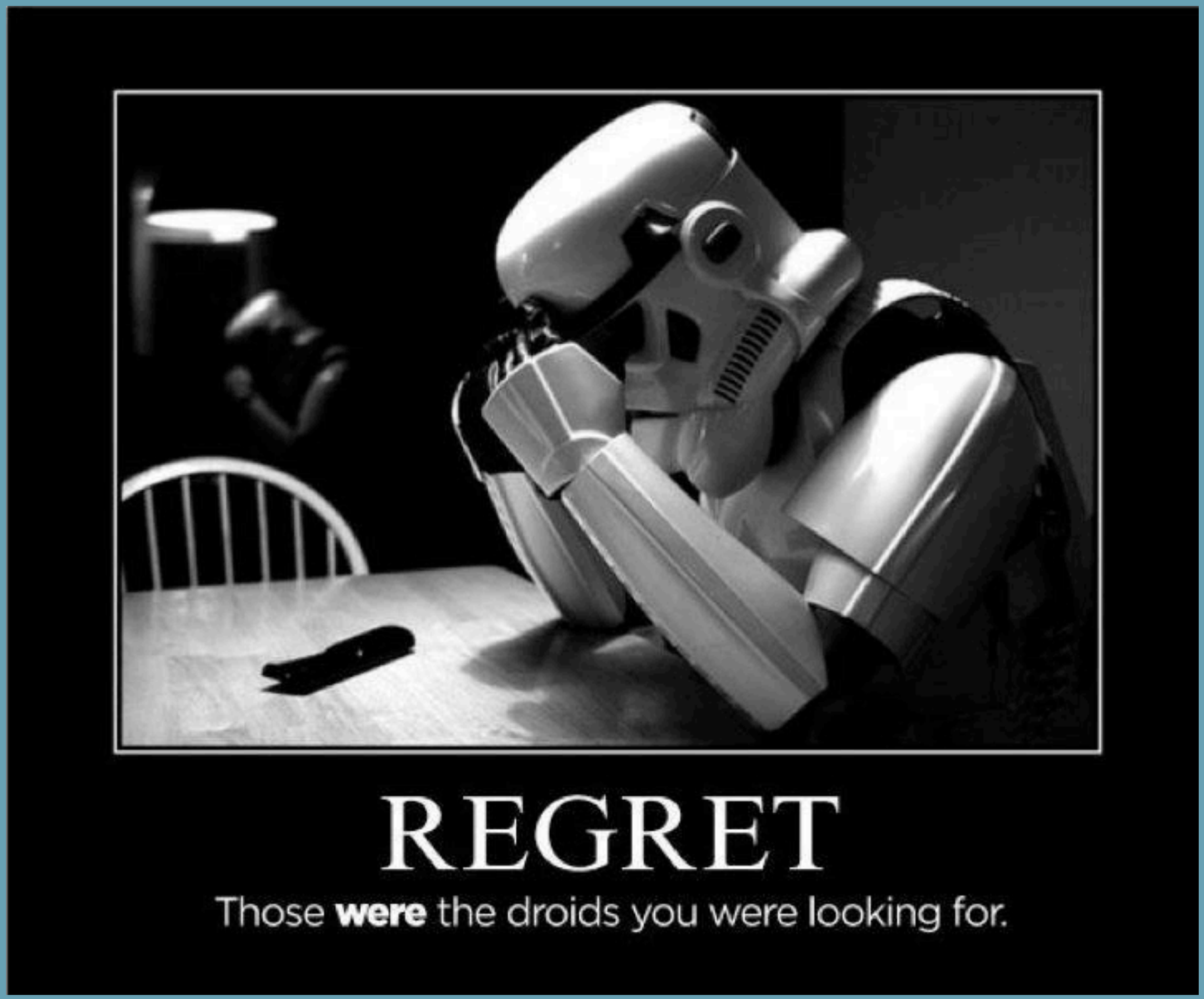

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