Time Capability in NETCONF

draft-mm-netconf-time-capability-03

http://tools.ietf.org/html/draft-mm-netconf-time-capability

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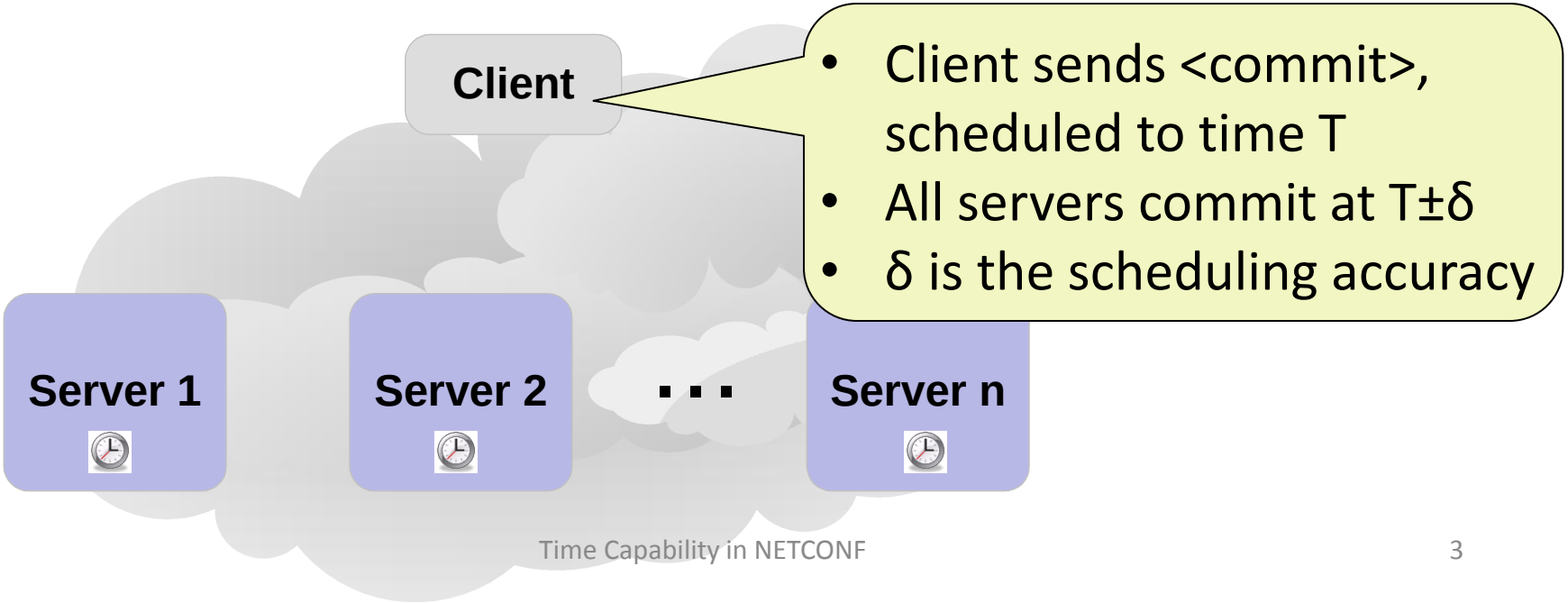
Overview

- This draft defines the **time** capability.
- Allows time-triggered RPCs.
- Client can attach a scheduled time of execution to RPCs.
- Server can attach timestamp to RPC reply.
- Very powerful tool for various network configuration scenarios.
- We defined a similar extension to the OpenFlow protocol. It is now in OpenFlow 1.5.0 and in the OpenFlow 1.3.x extension package.

Example: Network-wide Commit

All-or-none commit:

- Client sends 'commit at time T' to n servers
- A client that receives an error message from some server sends cancellation messages to all
- In the absence of cancellation, the n switches commit at time T



History of this Draft

- July 2013 – draft 00
- July 2013 – presented in IETF 87, Berlin
- Jan 2014 – draft 01
  - Incorporated a lot of feedback from the WG
- Dec 2015 – draft 03 (current draft)
  - We believe we addressed all the issues raised on the mailing list.

- ***Next step***: consider WG adoption

THANKS !

References

[1] T. Mizrahi, O. Rottenstreich, Y. Moses, "TimeFlip: Scheduling Network Updates with Timestamp-based TCAM Ranges", INFOCOM, 2015.
http://tx.technion.ac.il/~dew/TimeFlipINFOCOM.pdf

[2] T. Mizrahi, Y. Moses, "Time-based Updates in Software Defined Networks", the second workshop on hot topics in software defined networks (HotSDN), 2013.
http://tx.technion.ac.il/~dew/TimeSDN.pdf

[3] T. Mizrahi, Y. Moses, "On the Necessity of Time-based Updates in SDN", in the Open Networking Summit (ONS), 2014.
http://tx.technion.ac.il/~dew/ONS-Time.pdf

[4] T. Mizrahi, Y. Moses, “Time Capability in NETCONF", draft-mm-netconf-time-capability, work in progress, 2014.
https://tools.ietf.org/html/draft-mm-netconf-time-capability

[5] Open Networking Foundation, OpenFlow switch specification, Version 1.5.0, 2015.
https://www.opennetworking.org/images/stories/downloads/sdn-resources/onf-specifications/openflow/openflow-switch-v1.5.0.noipr.pdf

[6] Open Networking Foundation, OpenFlow extensions 1.3.x package 2, 2015.
https://www.opennetworking.org/images/stories/downloads/sdn-resources/onf-specifications/openflow/openflow-extensions-1.3.x-pack2-noipr.zip