

Efficient XML Interchange Capability for NETCONF

draft-varga-netconf-exi-capability-00

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Introduction

- NETCONF is a candidate protocol for I2RS
 - High transaction rate is expected
 - Concerns over XML encoding efficiency
- Goals:
 - Define a binary message encoding based on EXI
 - Completely optional, backwards compatible
 - No impact on other protocol aspects

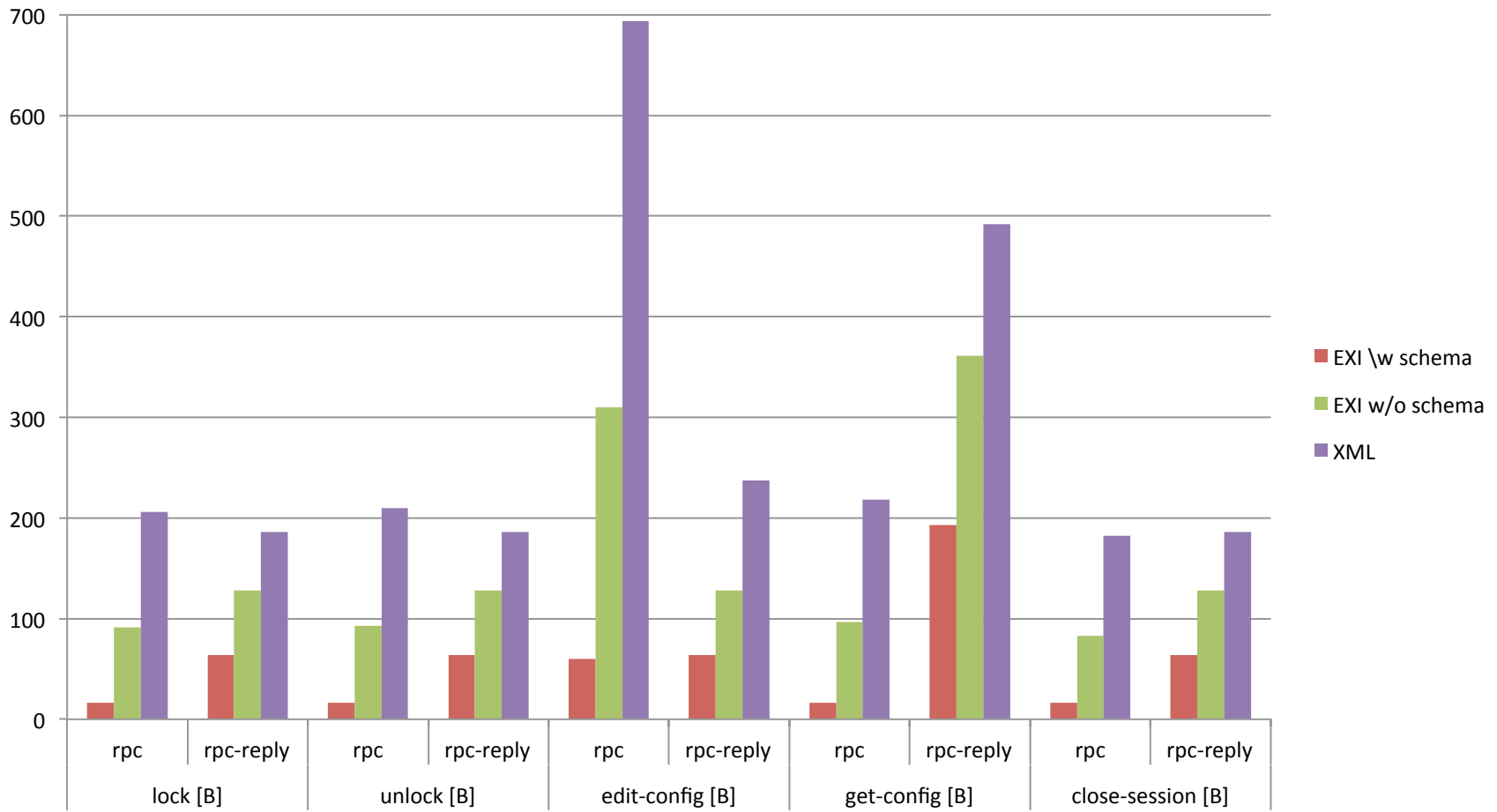
What is Efficient XML Interchange?

- Binary encoding of XML Information Set
- W3C Recommendation
- Two basic modes of operation
 - Schema-less
 - Schema-informed
- Tunable information packing
- Tunable loss of non-essential information

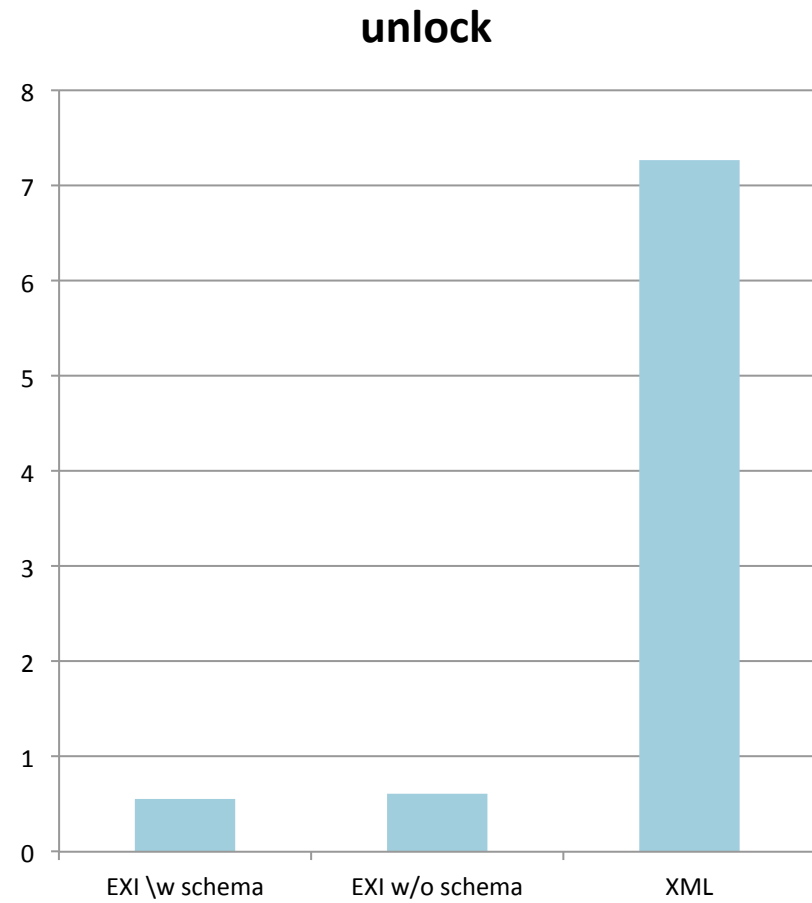
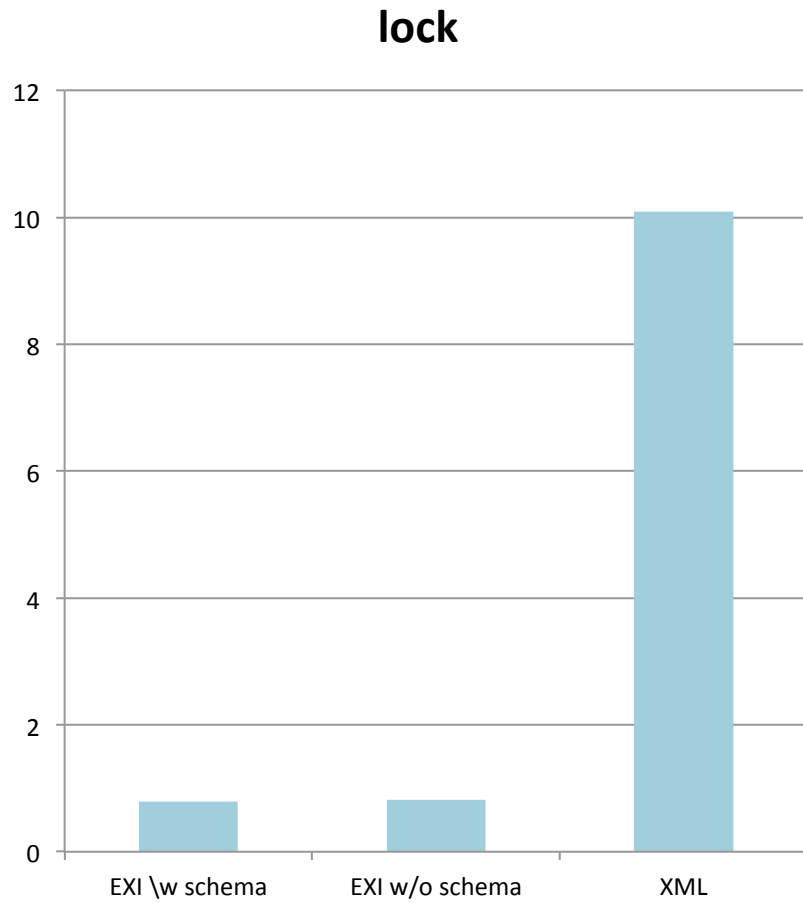
Performance prototype

- Existing commercial NETCONF implementation
- Hard-wired to support EXI using exip
 - Schema-informed tests using cut-down netconf.xsd from RFC6421
- Transport modified to UNIX-domain sockets
- Measure on-wire message sizes
- Measure operation latency
 - Request encode/decode
 - Operation execution
 - Response encode/decode

Message sizes

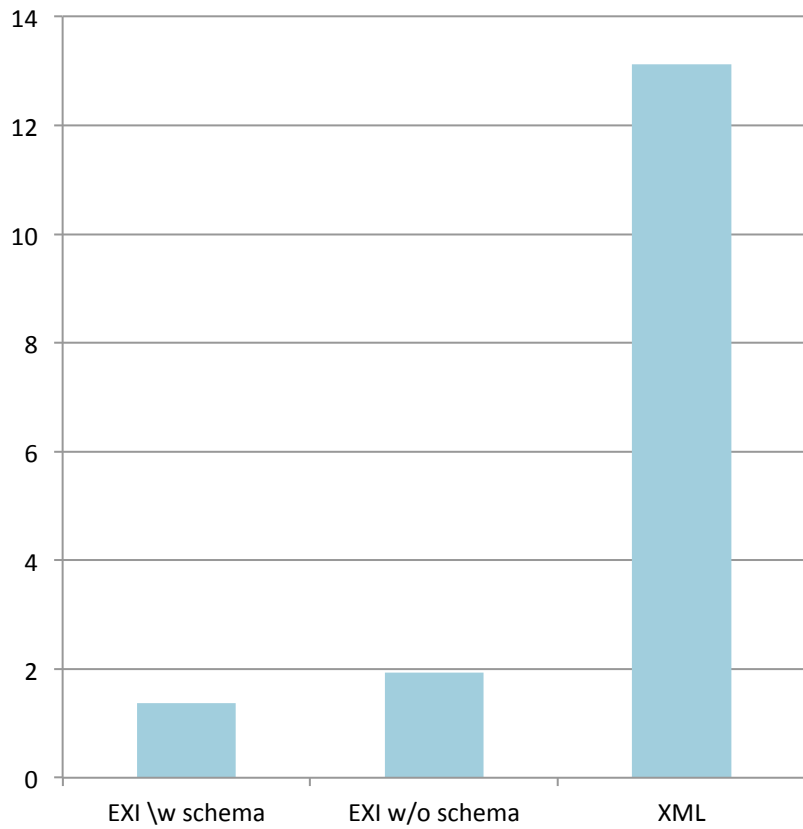


No-data operation latency

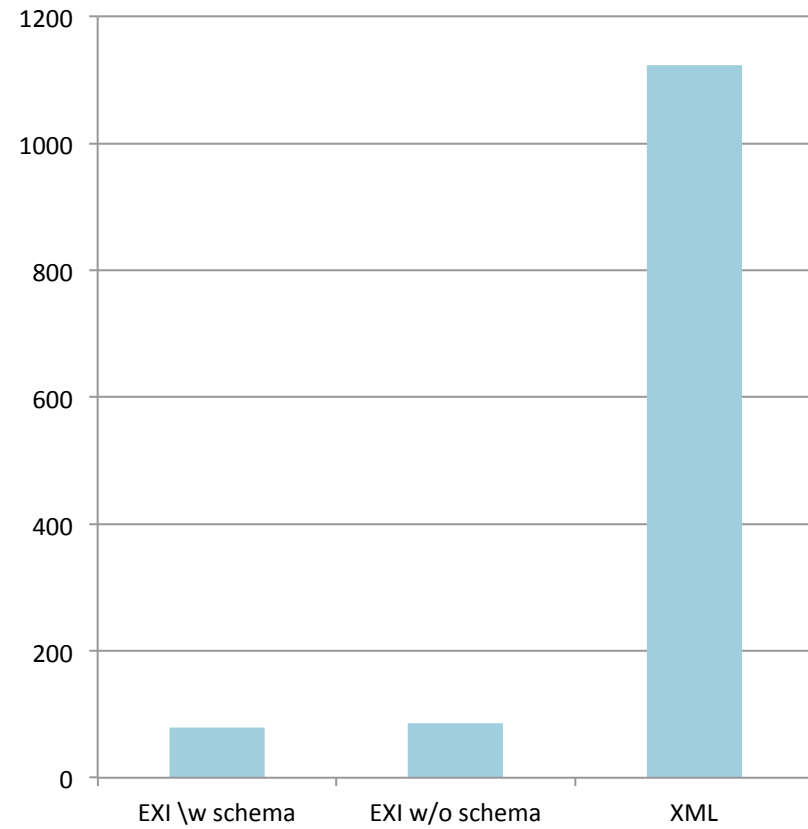


Data operation latency

get-config

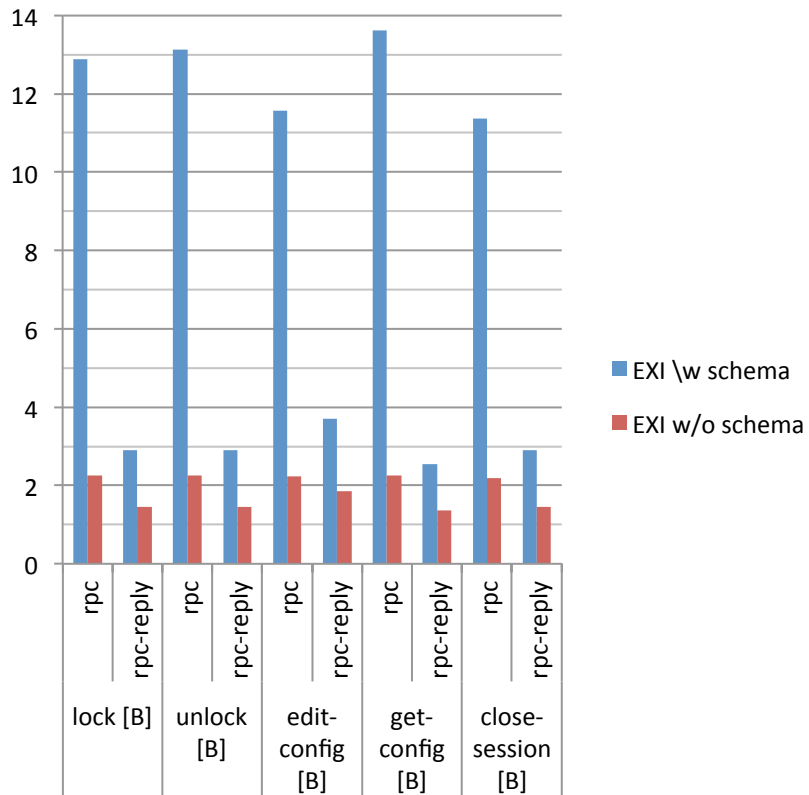


edit-config

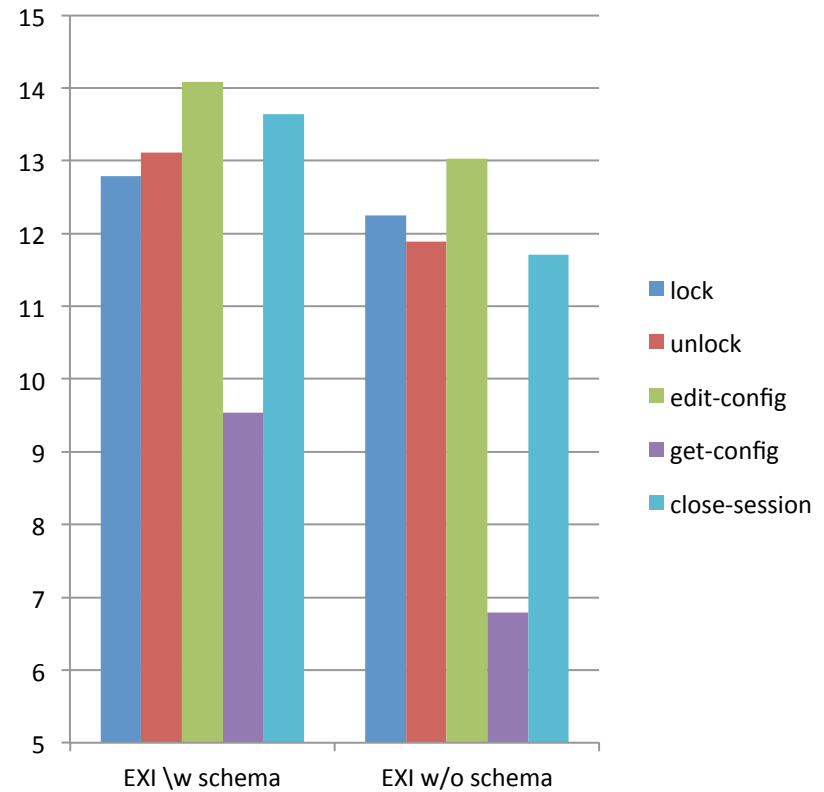


Improvements

Message size



Latency



Current state

- Basic capability advertising support
- Two new operations to enable/disable EXI encoding
- Supports schema-less and fixed-schema operation
- No existing implementation (yet)

Next steps

- Improve document with implementation guidelines
- Develop an implementation
 - Patch to libnetconf
 - OpenDaylight NETCONF plugin (?)
- Optional dynamic schema capability
 - Client/server schema interchange
 - May be unavailable in constrained environments

Q&A

Thank you