MGMTD
Getting Approved

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PR10000 MGMTD pull-request

- Currently PR contains 194 changed files.
  - 6 commits, seem nicely separated

- Local and Remote validation options exist (thanks)
  - Local: embed component northbound functions directly in mgmtd
  - Remote: give mgmtd the set of xpaths component handles
    - Xpaths can be compiled in or signaled with RPC

- mgmtd local validation currently on by default

- mgmtd remote code needs fix
  - chopps has the patch/fix ready for review and merge.

Local Validation

- PROS:
  - Tiny bit faster (1%) – e.g., 10k static route config
    - Local Validation: 20.76s
    - Remote Validation: 20.95s
  - Forces component authors to not use operational data during config process
    - However, this is easy to catch in review
  - Pushpasis: Local validation done under mgmtds cooperative scheduler
    - [chopps: if not what batches were for, then batches are useless complexity, so let's dump them ☺]
- CONS:
  - Complexity in every component
    - #ifdefs in every northbound function
    - For example, isisd will have ~124 functions with #ifdef's cutting them up
    - Far worse for BGP
  - Fixable later if necessary
    - Add validation callback separate from "prepare/apply/abort" callback, no more ifdefs
    - Significant number of LOC changed, but relatively easy to review if done separately

Remote Validation

- Greatly simplifies per component requirements
  - Removes massive number of #ifdefs permeating the northbound (user written and managed) component code.
  - Changes reduced to small init/cleanup common functions
    - Required for both local and remote validation
- Simplifies review of every component b/c very little of the component is changed.
  - #ifdefs can be isolated to single machine generated file
    - Will provide script to update the existing machine generated files.
  - #ifdefs can be eliminated by using existing xpath registration API
    - Very simple to add if the existing mgmtd functionality works
  - We don't need the ifdefs even now, just need to put wildcard xpath somewhere
    - Need to move the per component xpaths from mgmtd to the component for single source of truth

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Fixing Abbreviations

- Color of the bikeshed ☺
- Is more than just asthetics
  - frntnd / bcknd not good
  - Removing vowels in long words leads to constant typos due to muscle memory
- Suggestion from top to bottom preference (so far)
  - _fe_ / _be_ [chosen]
    - google frontend backend, febe is top hit
    - matches our existing 2 char "nb" for northbound
  - _frend_ / _bkend_
    - less preferred too many keys, but more "readable" I guess
  - frontend / backened
    - too many characters in already long identifiers not good choice

Next Steps

- Branch Created (dev/mgmtd)
- Fix abbreviations using existing commits [picked fe/be AI: chopps]
- Remove huge topotest change commit [AI: nguggarigoud@vmware.com>]
- Fixes and improvements added using pull-request/review
  - Add simple topotest change maybe 4 files instead of ~170? [AI: nguggarigoud@vmware.com>]
    - Hack: Need to load each converted component's config into mgmtd in topotest
      - Until/if we convert topotest to use consolidated config.
  - Fix remote validation [AI: chopps]
  - Fix staticd component inc. xpath wildcard [AI: pushpasis]
  - Add simple CI test [AI: chopps]
  - Fix xpath registration code 'subscribe' functionality?
  - Remove unnecessary complexity (e.g., use events not 10µs timers)?
- Enable CI test for branch
- **Replace PR/10000 and get merged to master!** ☺