Improving SONiC Stability

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SONiC Development Challenges

Fast growing matrix of

- Contributors
- Features
- Platforms
- Architectures
- Roles

Master stability issues

- Frequent regressions
- Lack of baseline measurement
- Latency in issue detection and communication

Merge Latency

- Code review assignment
- Merge approval

Why Do Regressions Happen?

Common causes

- Inadequate testing prior to merge
- Merging changes on already unstable baseline
- Lack of awareness of different form factors (multi-asic, chassis)
- Inability to test on all community platforms/architectures

Both in NOS and test code

- Test bugs are much more common, but easier to fix
- NOS bugs are less common but more impactful and take longer to fix

~40 regressions tracked by Arista in the last year

Instability is a Vicious Cycle

Instability on master means that release branches also start unstable

Significant effort spent in stabilizing the release branch

Stretches the release qualification cycle

More time on release stabilization = lesser focus on master

More bugs creep into master

Rinse … Repeat …

Improvement Strategies

Start regular testing on master

- Start off with virtual DUTs (single and multi-asic)
- Expand to a subset of reference physical testbeds
- Goal: One test run completing every day

Improve community visibility of test results

- All test results on master are posted in a community visible repository
- Can be used as a baseline to evaluate impact of new changes

Community task force to focus on improving master stability

Eventually integrate some sonic-mgmt testing into the merge workflow

- Having sufficient test resources and stable tests is very important for this

Questions

How to organize logistics

- Community participants run tests in their environments and post results?
- Common SONiC compute resources for virtual testbeds?
- Common lab with participant contributed gear for physical testbeds?

Where to host the test result repository and how to make it visible ?

What about information sensitivity?

- Are all participants comfortable with sharing results on their products?

What are the right working groups to involve?


Thank You
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