# *Gluster X*

Red Hat

Gluster X (10 in Latin...) is a proposal to plan some features that will be implemented across Gluster versions 8, 9 and 10.

Red Hat

There's nothing special about the number 10, it's just 3 versions away and is a cool number.
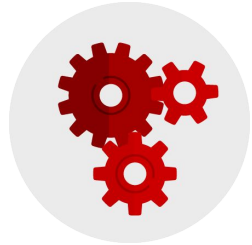
Red Hat

Planning ahead allows better risk management, design, implementation flexibility and the ability to break stuff!

Red Hat

Backward Compatibility

Innovation

Red Hat

Red Hat
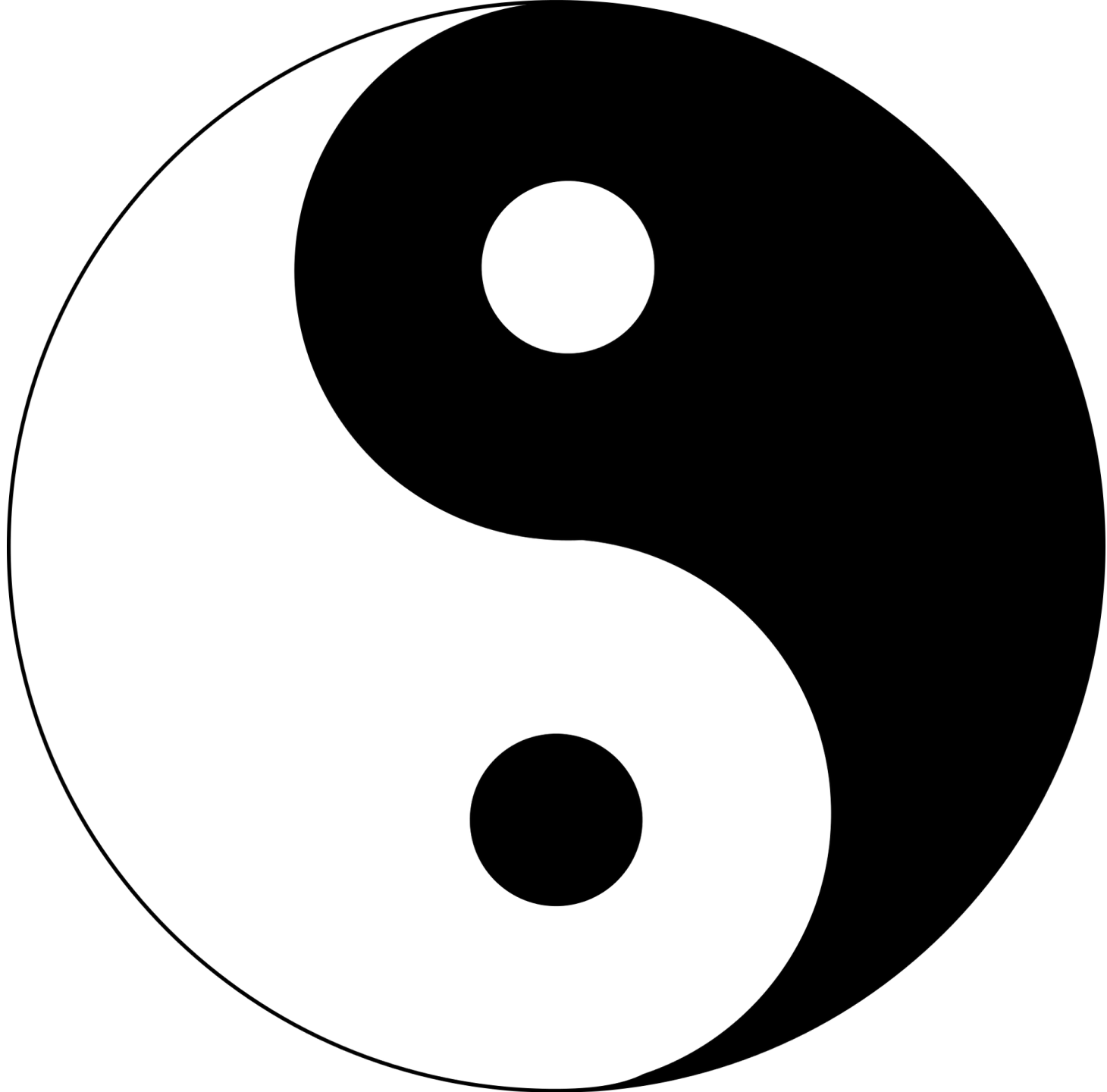
The 4 key areas we would like to focus on

Performance

Performance enhancements, in both the data path and the control path.

Debugging

Improve maintainability of the project, with structured logging, tracing and instrumentation

Quality

Continue the efforts to improve code quality, using static analysis and code coverage, CI efficiency and accuracy

Scalability

Support more nodes, more volumes, more clients, ...

Red Hat

Network layer optimization

Replace the existing XDR network stack with a modern one, to reduce the network layer overhead. Look at zero-copy and improve other bottlenecks in the area.

Targeted version: 10
Complexity: High
Risk: High
Priority: High
Confidence level: Low

Red Hat

Performance Layer optimization

- ls -l issues
- Other perf xlators bottleneck
- DB specific workloads

Targeted version: 9
Complexity: ?
Risk: ?
Priority: High
Confidence level: ?

Red Hat

Path-based Geo-Replication

See https://docs.google.com/document/d/1gW5ETQxNiy9tt4uV1ohRH1g5AMmWLtbQYD3QPs_v8Ec/edit?usp=sharing

Targeted version: 8/9
Complexity: ?
Risk: ?
Priority: High
Confidence level: Medium

Red Hat

Global thread pool

Fine-tune the implementation to avoid regression in some workloads. Potentially related is work to reduce contention on io-threads.

Targeted version: 9
Complexity: ?
Risk: ?
Priority: High
Confidence level: Medium

Red Hat

3k-4k volumes support

Release some bottlenecks that prevent Gluster from fully supporting thousands of volumes

Targeted version: 8
Complexity: Medium
Risk: Low
Priority: Medium
Confidence level: High

Red Hat

RIO

Bring RIO to production quality to increase scalability in terms of nodes.

Targeted version: 10
Complexity: Medium
Risk: Medium
Priority: Low
Confidence level: Low

Red Hat

Debugging

Code Instrumentation / Tracing

Use OpenTracing or SystemTap/dtrace and friends to better find bottlenecks in the system
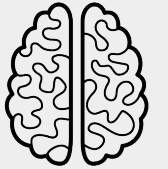
Targeted version: 10
Complexity: Medium
Risk: Medium
Priority: Low
Confidence level: High

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Red Hat

Structured logging

Move to use the implemented structured logging facility across the project.

Targeted version: 10
Complexity: Medium
Risk: Medium
Priority: Low
Confidence level: High

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GFID split brain resolution

<TBD>

Targeted version: 9
Complexity: Medium
Risk: Medium
Priority: High
Confidence level: High

Red Hat

Breaking changes
are those that in the best
case will require a disruptive
upgrade and in the worst
case scenario, data migration.

While we should strive to avoid
them, it's critical to notify the
community and perhaps offer
LTS version of Gluster 9

Red Hat