Monitoring Multiple DNS Server Flavours with Stork Project: „Babies”

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Babies Team

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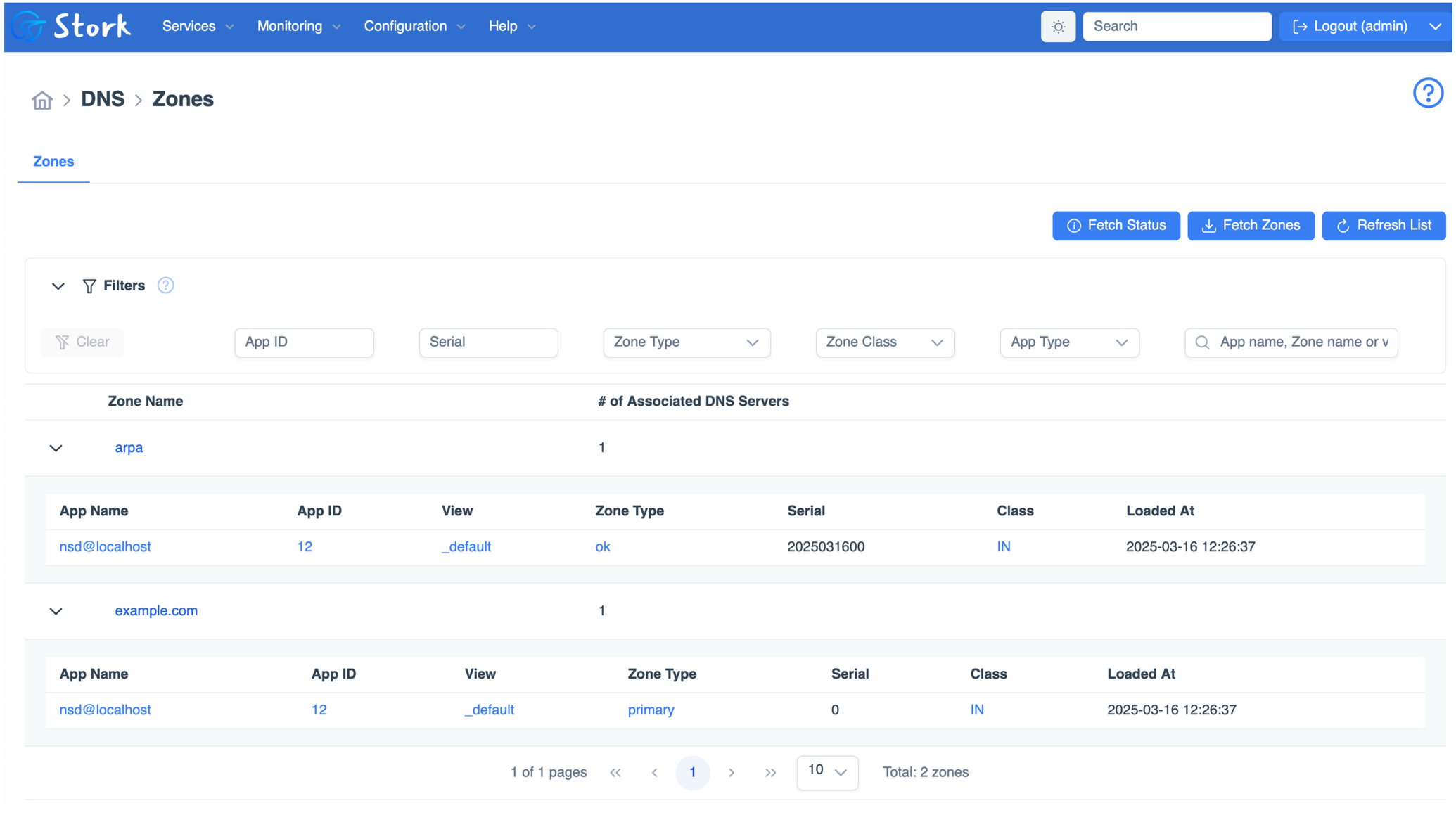
Project Goals

- Integrate NSD authoritative server with Stork.
- Identify differences between DNS implementations, including their APIs, configurations, and how they „appear” to the external programs.
- Come up with best practices for integrating DNS servers with the monitoring solutions.
- Make recommendations on how the DNS implementors could improve their software.

Passdowns

- Integrated NSD with Stork
  - NSD daemon detection.
  - Basic configuration parsing to establish communication with NSD.
  - Use of nsd-control to retrieve service status and configured zones from NSD.
  - Parse zone information to be displayed in the zone viewer (UI).
  - Adapted data models in Stork server to accept new type of application.

Baby Delivered



Observations

- NSD does not return a serial for a zone for which it is a primary.
- The zone types returned by NSD have different names than the zone type names used by BIND9. For example NSD uses „ok” to mark a secondary zone whereas BIND9 uses „secondary”.
- NSD spawns several processes that appear as several separate applications to the Stork agent. In fact, they are a single DNS instance.
- There are generally two types of APIs that DNS servers expose: REST API (e.g. BIND9, PowerDNS) and RPC with proprietary tools (e.g., NSD). The latter require custom parsers and thus are harder to work with.

Conclusions

- Some servers may spawn several processes and their command lines should be compared to identify which constitute a single DNS instance.
- The tools should consider systemd as an alternative to simple „ps” to detect a running process.
- Deal with zero serial numbers correctly. It is not the same as being unavailable. It is unavailable for primary zone in case of NSD.
- There is no single naming convention for zone types. There is a question if a monitoring tool should try to unify the naming or leave they as they are.
- In cases when there are several DNS servers installed on a single system there should be a way to configure them when they are turned off and possibly also a way to activate/deactivate them from the management panel (e.g., UI).

Future Ideas

- Integrate DSC into Stork:
  - Generating DSC config from the server config;
  - Run DSC;
  - Periodic processing of the DSC data into Prometheus metrics.
- New hackathon topic:
  - Compare the statistics reported by the DNS servers with the statistics calculated by the external tools (e.g., DSC).