Arion Health framework

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Arion Health/Anomaly check framework

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Key components

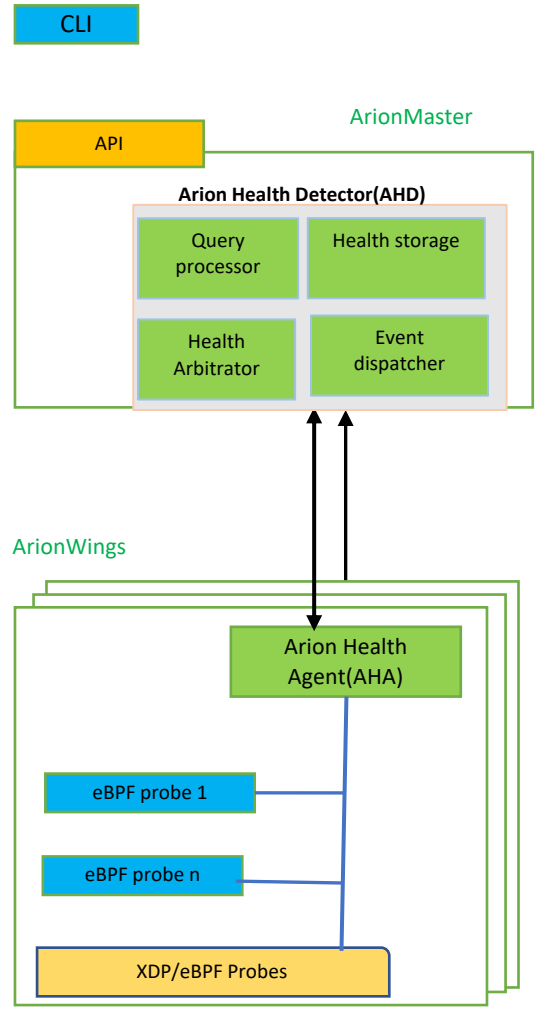
eBPF probes: A set of eBPF probes. Core ones are pre-installed, others can be dynamically deployed based on needs change.

Arion Health Agent(AHA): installed per host. It takes events from AHD and deploys eBPF probes to collect and analysis selective data and send triggered events over to AHD.

Arion Health Detector(AHD): installed per cluster. It consists of query processor; event dispatcher, event collector, health table:

- **Query processor:** analysis query to form into various events for event dispatcher; or response with health items as requested;
- **Event dispatcher:** dispatch events to AHA;
- **Health Arbitrator:** collect triggered events from AHA and stored in Health storage; analyze triggered events
- **Health storage:** store current and histogram of cluster health info.

API : A set of APIs for health check definition and queries for CLI to use. We can construct **DSL** for defining events.



Key goals:

1. Able to define health monitoring events and deploy them;
2. Able to install eBPF probes and collect health data and trigger events at AHA;
3. Able to collect triggered events and store in Health storage;
4. Able to query health info via CLI for other components in cluster.

What's the difference?

1. Finer monitoring events at edge with faster response instead of purely collecting massive raw telemetry data with slower response or even worse, undetected symptoms:
   Towards micro-second anomaly detection granularity
2. dynamic event creation and injection, allow adding AI components into the equation in the future.

What monitor metrics to start?

1. network telemetry; 2. generic node health info.