

# 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.

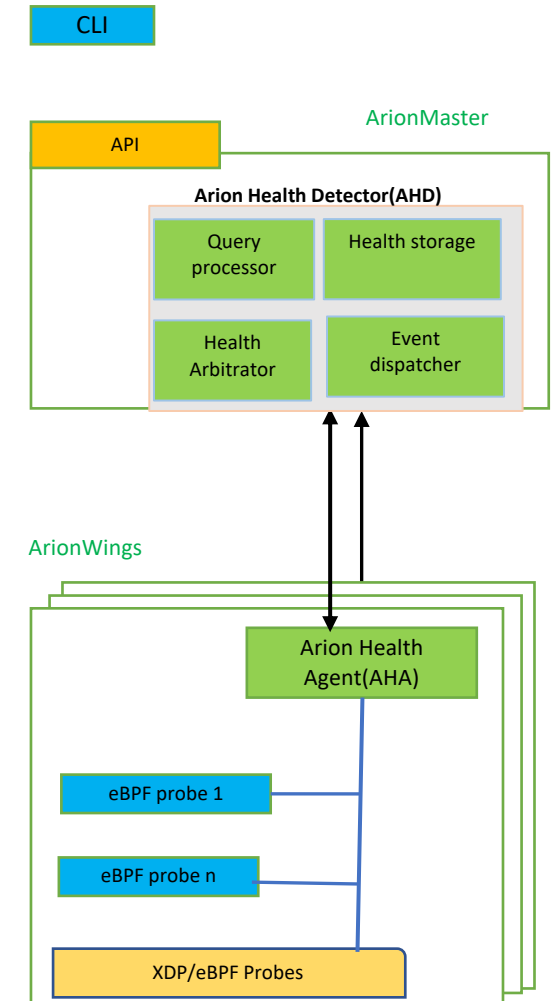
**Arion Health Detector(AHD):** installed per cluster. It consists of query processor; event dispatcher, event collector, health table:

- **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.

**APIs :** 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 are the differences?*

1. [Azure Anomaly Detector](#) embed time-series anomaly detection capabilities into your apps to help users identify problems quickly, its granularity is at most at **per minute** level;
2. The cloud/edge application becomes increasingly sensitive to performance anomaly at **micro-second** granularity:

***Traditional analytic technics can't meet new demands!***

3. Arion Health framework is with finer monitoring granularity at the edge with faster response and can potentially detect otherwise undetectable symptoms:

***Towards micro-seconds anomaly detection granularity***

4. flexible extendibility:
  - dynamic event creation and injection;
  - allow exploring various AI algorithms into the equation in the future.

*What monitor metrics to start?*

- network telemetry;
- generic node health info.

