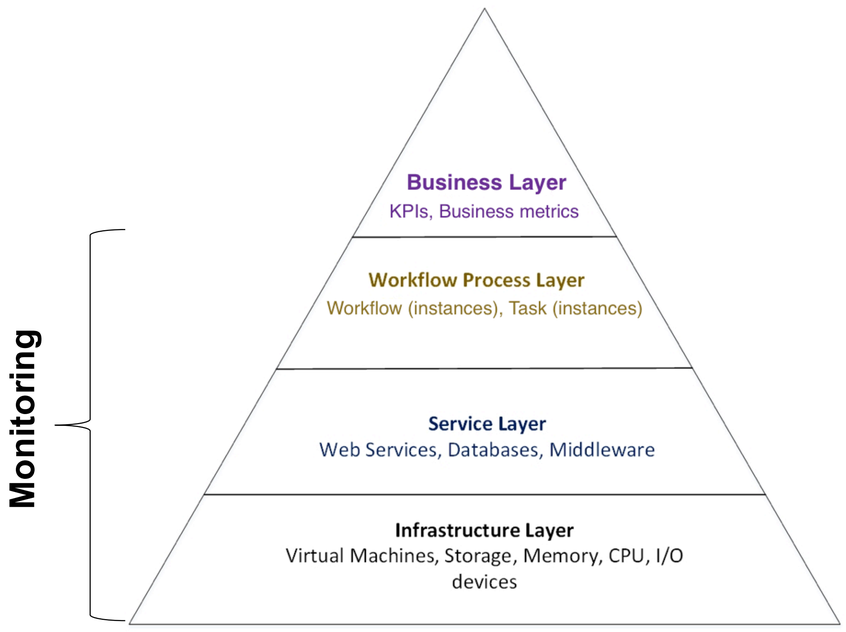
Cross-layer BPaaS Monitoring Research Prototype

Why Cross-layer Monitoring?



- Gain a clear view of **BPaaS performance.**
- Drive the **root-cause analysis** to identify the source of the problem.
- Ease the process of **cross-layer adaptation.**

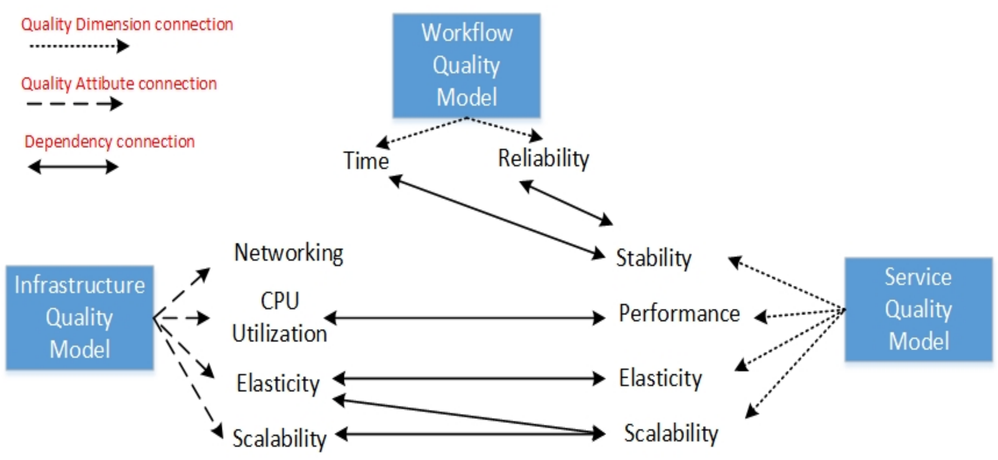
Issues

- Current monitoring frameworks:
  - **Fragmented** covering 1 or 2 layers at most.
  - **Limited set of metrics** considered.
  - **No alignment of monitoring events.**

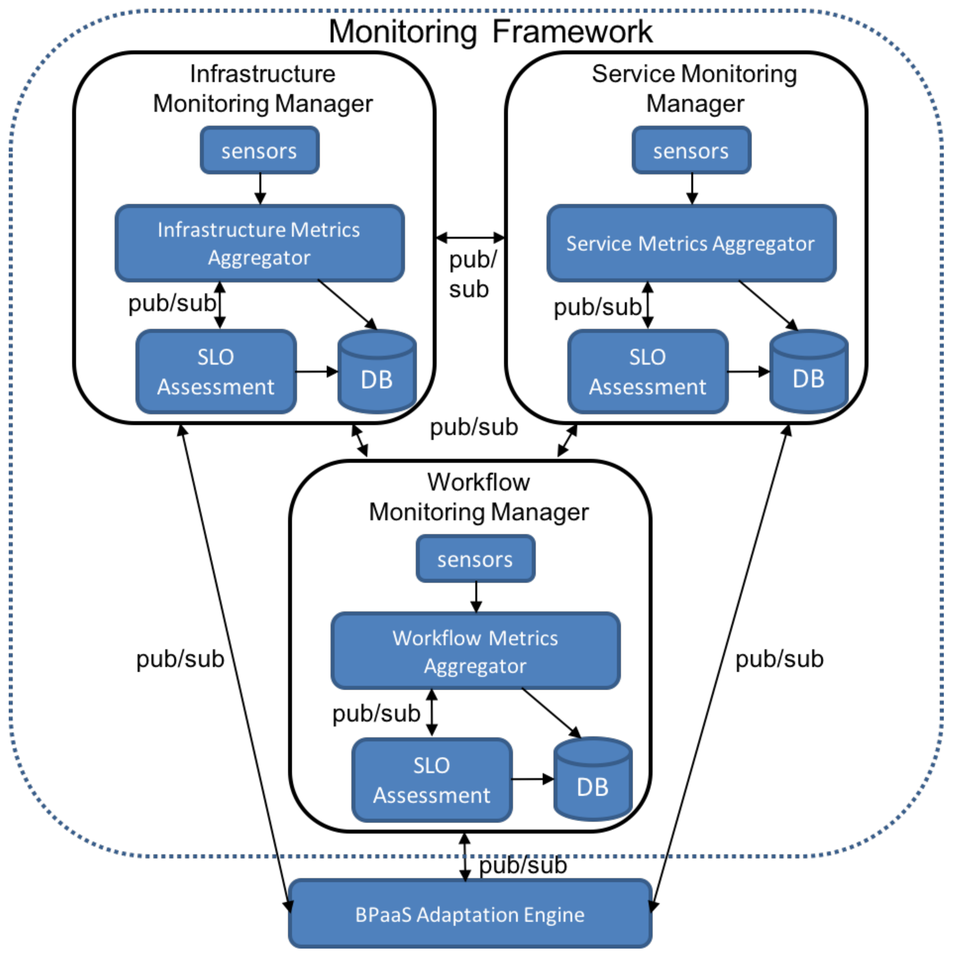
Solution

- **Cross-layer metric model** to cover the measurement gap in same or across connected layers.
- **Layer-specific monitoring mechanisms.**
- **Publish-subscribe** mechanism for propagation of measurements from lower to higher-levels.
- **SLO condition evaluation.**
- Processes the monitoring event stream and stores the assessed raw events into a **Time-series Database (TSDB).**

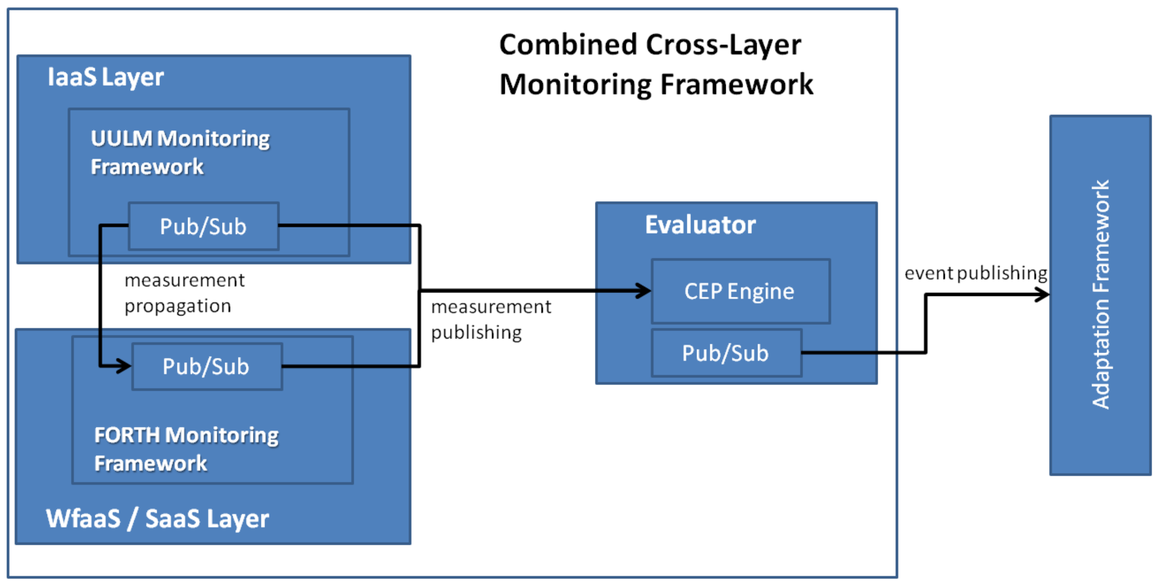
Cross-layer Metric Dependencies model



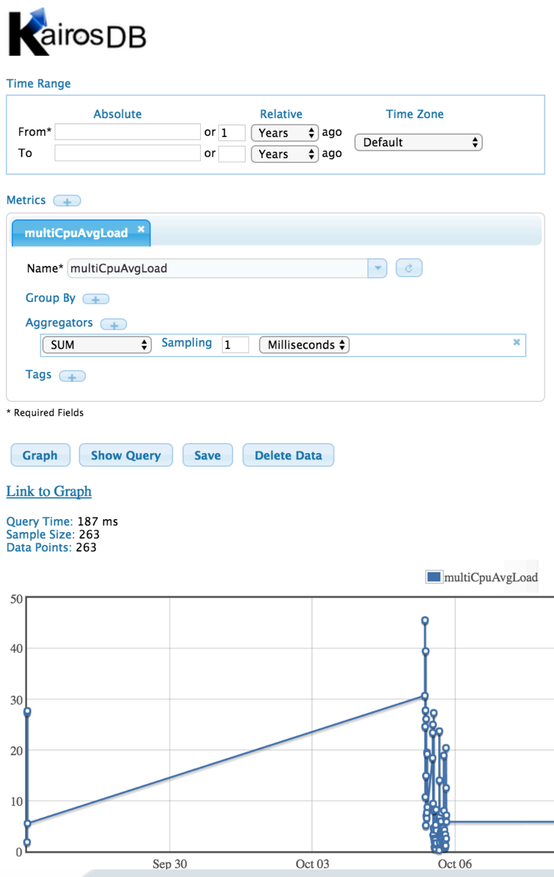
FORTH Cross-layer BPaaS Monitoring Framework



Combined Cross-layer Monitoring Framework



Aggregating and Visualizing Monitoring Data



- **KairosDB** is a time-series database that stores time series in **Cassandra** (NoSQL datastore).
- Its **REST API** provides operations over measured metrics.
- KairosDB **Web UI** includes a query page whereby you can query data within the data store.
- **Aggregators** perform an operation on data points and down samples.

CloudSocket