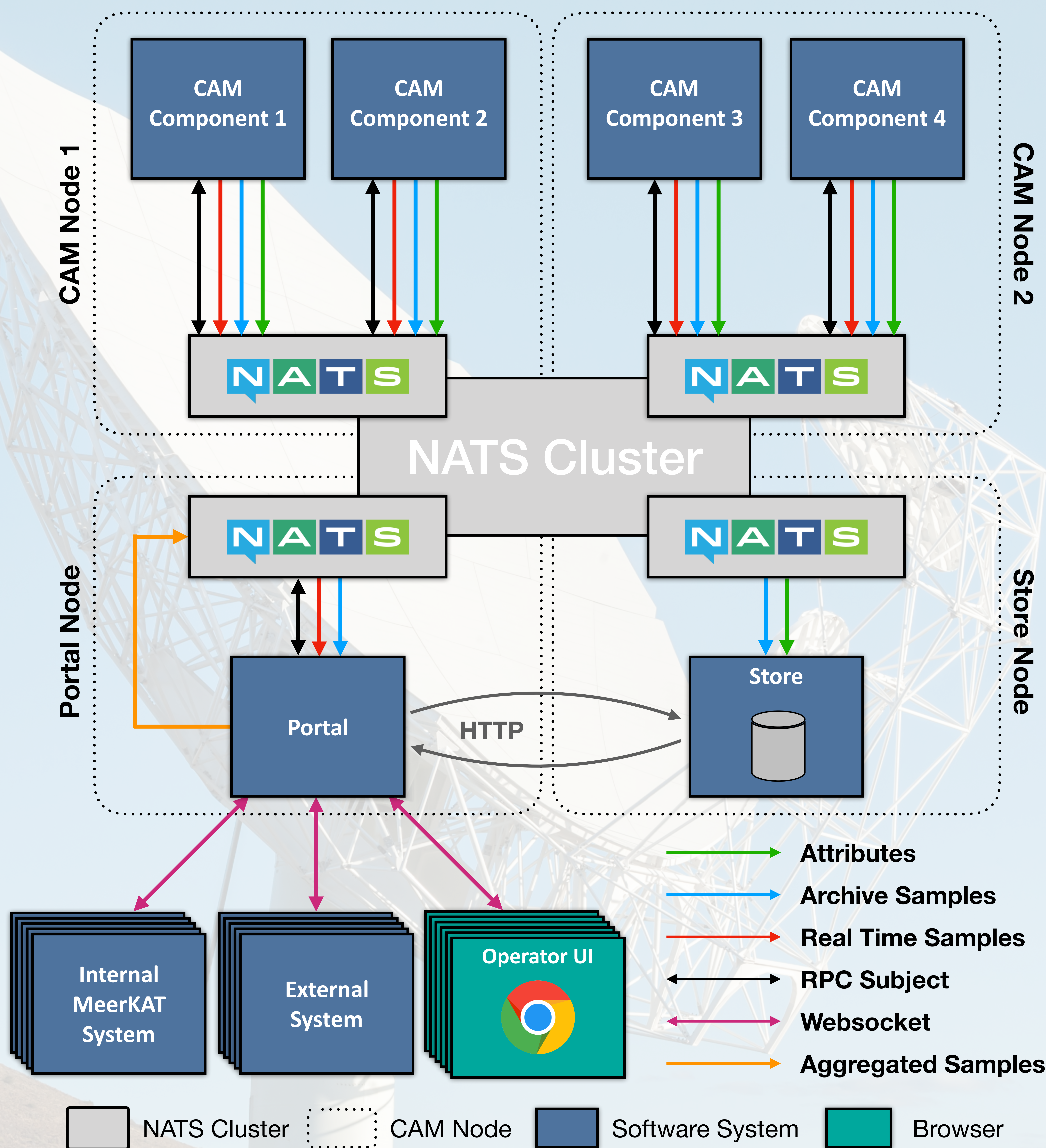# Distributing Near Real Time Monitoring and Scheduling Data for Integration with other Systems at Scale (THPHA137)

CAM Node 1

CAM Component 1 **CAM Component 2**

NATS

CAM Node 2

CAM Component 3 **CAM Component 4**

NATS

NATS Cluster

NATS

NATS

Portal Node

Portal

Store Node

Store

HTTP

Internal MeerKAT System

External System

Operator UI

Legend:

→ Attributes
→ Archive Samples
→ Real Time Samples
→ RPC Subject
→ Websocket
→ Aggregated Samples

NATS Cluster | CAM Node | Software System | Browser

Overview

CAM generates monitoring and scheduling data that internal and external systems require to operate. Distributing this data in near real time requires a scalable messaging strategy to ensure optimal performance regardless of the number of systems connected. Many more external systems are expected to join MeerKAT in the future. This strategy is implemented using standard web technologies and the publish-subscribe messaging pattern.

Conclusion

A scalable data distribution system can be created with relative ease. CAM uses an existing high performance open source messaging system called NATS. With the messaging system in place, CAM components publish directly to the appropriate subjects without the need for an intermediate monitoring processes, thus greatly reducing the overall system load and improving the system responsiveness. CAM now scales quickly and efficiently to support many connected systems. NATS is also used to distribute data to the CAM sensor data archiving system.

Francois Joubert (fjoubert@ska.ac.za), Martin Slabber (martin@ska.ac.za)

Square Kilometre Array South Africa, National Research Foundation