

A Framework for Sensor-Federated Networking (SenSORCER)

Sujit Bhosale

<h2>Thesis Description</h2> <h3>Problem Statement</h3> <ul style="list-style-type: none">• Large header overhead of existing communication protocols for relatively small sensor data• Static topology of sensor locations and data collection points• No efficient method of handling growing number of sensors and sensor data flow reversal• Not easy sensor data availability to metacomputing applications <h3>Conclusion</h3> <p>A framework for sensor-federated networking is needed to allow sensors to take part in the metacomputing environments, to cope with data flow reversal issues along with high sensor data processing and distribution capacity</p>	<h2>Objective/Approach</h2> <h3>Objective</h3> <p>A framework for sensor-federated networking</p> <h3>Approach (MC²)</h3> <ul style="list-style-type: none">• Review SOA (SPOA and SOOA) technologies• Design publish/subscribe sensor/probe model• Publish sensor probes as SORCER service providers• Network formation with service provider—multi-Probe Model• Extend multi-probe model to handle N/w of networks.• Deploy and Validate <p>Measure: publish/subscribe probe model Compute : high data processing through SORCER Communication: S2S through the SORCER FMI</p>																				
<h2>Schedule</h2> <table><tr><td>1. Literature review & analysis report</td><td>Fall 2006</td></tr><tr><td>2. Implementation model</td><td>03/05/2007</td></tr><tr><td>3. Single sensor integration</td><td>05/30/2007</td></tr><tr><td>4. Design sensor/probe model</td><td>06/15/2007</td></tr><tr><td>5. Sensor probe as SORCER service</td><td>06/30/2007</td></tr><tr><td>6. Sensor aggregation model design</td><td>07/15/2007</td></tr><tr><td>7. Network model implementation</td><td>08/15/2007</td></tr><tr><td>8. Multi probe—server model</td><td>Fall 2007</td></tr><tr><td>9. Sensor network of multi-probes</td><td>Spring 2008</td></tr><tr><td>10. Thesis defence</td><td>Spring 2008</td></tr></table>	1. Literature review & analysis report	Fall 2006	2. Implementation model	03/05/2007	3. Single sensor integration	05/30/2007	4. Design sensor/probe model	06/15/2007	5. Sensor probe as SORCER service	06/30/2007	6. Sensor aggregation model design	07/15/2007	7. Network model implementation	08/15/2007	8. Multi probe—server model	Fall 2007	9. Sensor network of multi-probes	Spring 2008	10. Thesis defence	Spring 2008	<h2>Benefits</h2> <ul style="list-style-type: none">• Sensor independent service providers (wrappers)• Scalable and dynamic sensor-federated networks• Autonomic system administration of sensor nodes• Easy sensor data flow management with rendezvous peers• Plug & play sensor service peers• Open and standards based framework• Friendly and intuitive service UI for managing sensor providers
1. Literature review & analysis report	Fall 2006																				
2. Implementation model	03/05/2007																				
3. Single sensor integration	05/30/2007																				
4. Design sensor/probe model	06/15/2007																				
5. Sensor probe as SORCER service	06/30/2007																				
6. Sensor aggregation model design	07/15/2007																				
7. Network model implementation	08/15/2007																				
8. Multi probe—server model	Fall 2007																				
9. Sensor network of multi-probes	Spring 2008																				
10. Thesis defence	Spring 2008																				