Flow Webs: Mechanism and Architecture for Sensor Webs

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Objective

• Prototype and demonstrate the flow web

• Simple, novel architecture that captures the conflicting demands of sensor webs

• Emphasizes dynamic adaptation for ease of experimentation, recovery from failure, automated command and control, and incremental development and deployment

• Integration at multiple levels, in many places, at different times throughout the internet.

Approach

• Continuous data transfer among peers: Flow sink may adjust the reliability of data transfer in keeping with sink-specific semantics, the rate of data generation, and the bandwidth of the network connection between the flow source and the sink

• Selective exchange: Flow sink may select from the flow exactly the data that it requires for its purposes

• Arbitrary intermediation: Intermediate components may be inserted anywhere within flows at any time for transformation and translation, buffering, re-sampling, or augmentation.

Co-I's/Partners

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Key Milestones

• Sensor simulation, modelling, agent and data requirements defined 03/2007

• Demo 1: Basic architecture and component interfaces 06/2007

• Initial implementation tested 07/2007

• Demo real-time static flows with streaming video 07/2007

• Demo real-time flow receiver mobility 11/2007

• Demo full Firewatch scenario with agent control 12/2007

TRL_{in} = 3