The Constrained Application Protocol (CoAP)

Moosa Yahyazadeh

The University of Iowa

November 4, 2016

What is CoAP?

- The Constrained Application Protocol (CoAP) is a specialized web transfer protocol for use with constrained nodes and constrained (e.g., low-power, lossy) networks
- The protocol is designed for machine-to-machine (M2M) applications
  - smart energy
  - building automation
- It provides a request/response interaction model between application endpoints
  - One design goal $\rightarrow$ keep message overhead small
    - Why? limiting the need for fragmentation in constrained environments

Request/response interaction model

- Interaction model of CoAP is similar to the client/server model of HTTP
- Machine-to-Machine interaction result in CoAP implementation acting in both client and server roles
- CoAP request/response
  - a request is sent by a client for an action (using a Method Code) on a resource (identified by a URI) on a server
  - server then sends a response with a Response Code; this response may include a resource representation
- Unlike HTTP, CoAP deals with these interchanges asynchronously over a datagram-oriented transport such as UDP.
  - using messages layer that supports optional reliability

- Abstract Layering of CoAP