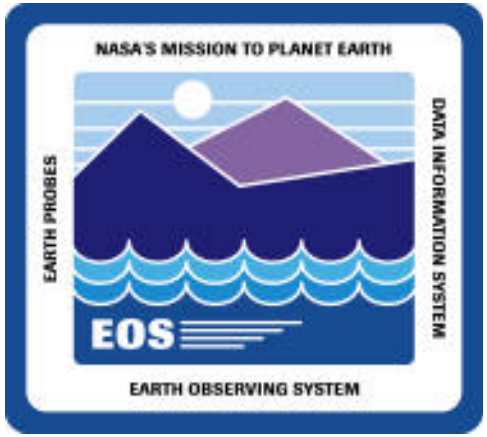
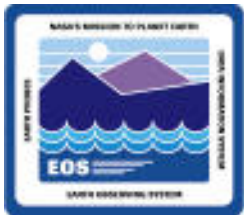


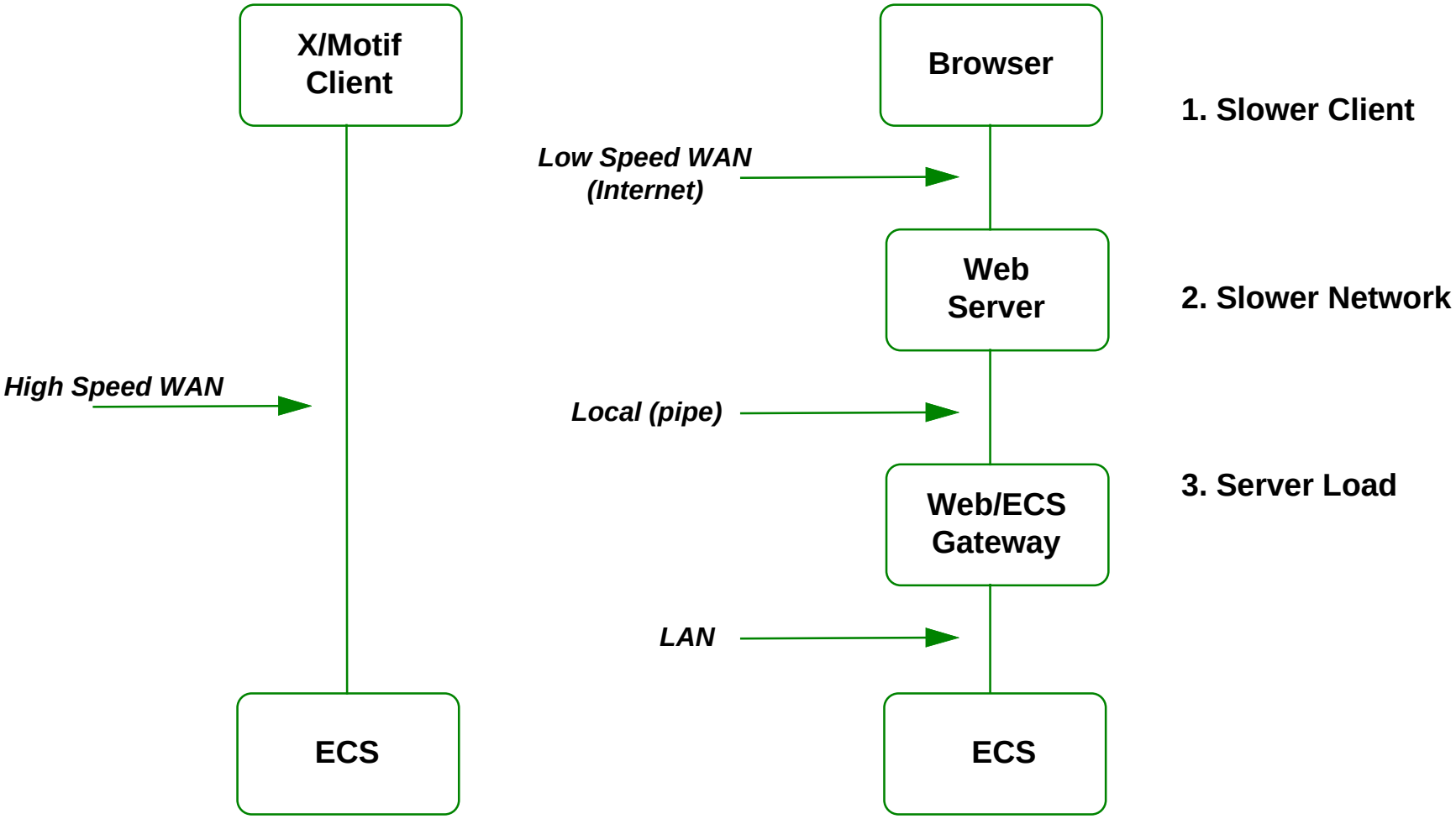
Performance

Andrew Fullford

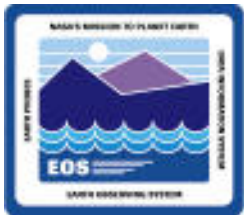
January 29, 1997

X/Motif vs. Web Performance





Sources of Performance Loss



Client Side

- Expectation of less capable client hardware
- Java execution speed

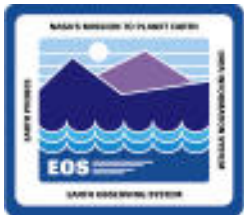
Network

- No local I/O: all user state goes via net
- Expectation of slower network
- Expectation of automatic application installation

Server Side

- More of application runs on server
- CPU/network tradeoffs
- Additional layers

Client Side Improvements



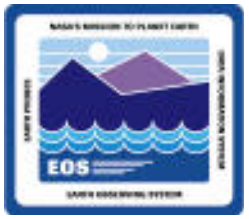
Less Capable Client Hardware (PC, Mac clients possible)

- **Reduce processing done on client**
- **No immediate problems**

Java Bytecode Interpretation

- **Already uses “big” operations, e.g., drawImage()**
- **Just-in-time compilation**

Network Improvements



No Local I/O

- Signed applets
- Sandbox (Marimba's Castanet)

Slower Network

- Higher density information (bandwidth)
- Streaming protocols (latency)

Loading the Application

- Zip files (latency)
- Caching (bandwidth)
- Castanet (latency and bandwidth)

Server Side Improvements

Distribution of Application Load

- Efficient services
- Adequate hardware
- Castanet

CPU/Network Tradeoffs

- Vector vs. image for mapping
- HDF vs. JPEG for browse

Additional Layers

- Eliminate web server
- Queue selections