



COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

SECE EXPLORER

COMS 6181
Advanced Internet Services
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Goals

- Discover IP enabled services in a local (home) network. (SECE Explorer)
- Send the service details (like IP, Port) to a central server (SECE server) via HTTP.
- Server to display the list of services.
- Server to send commands to the SECE Explorer to control a service.
- SECE Explorer to control the service with the command sent by the server.

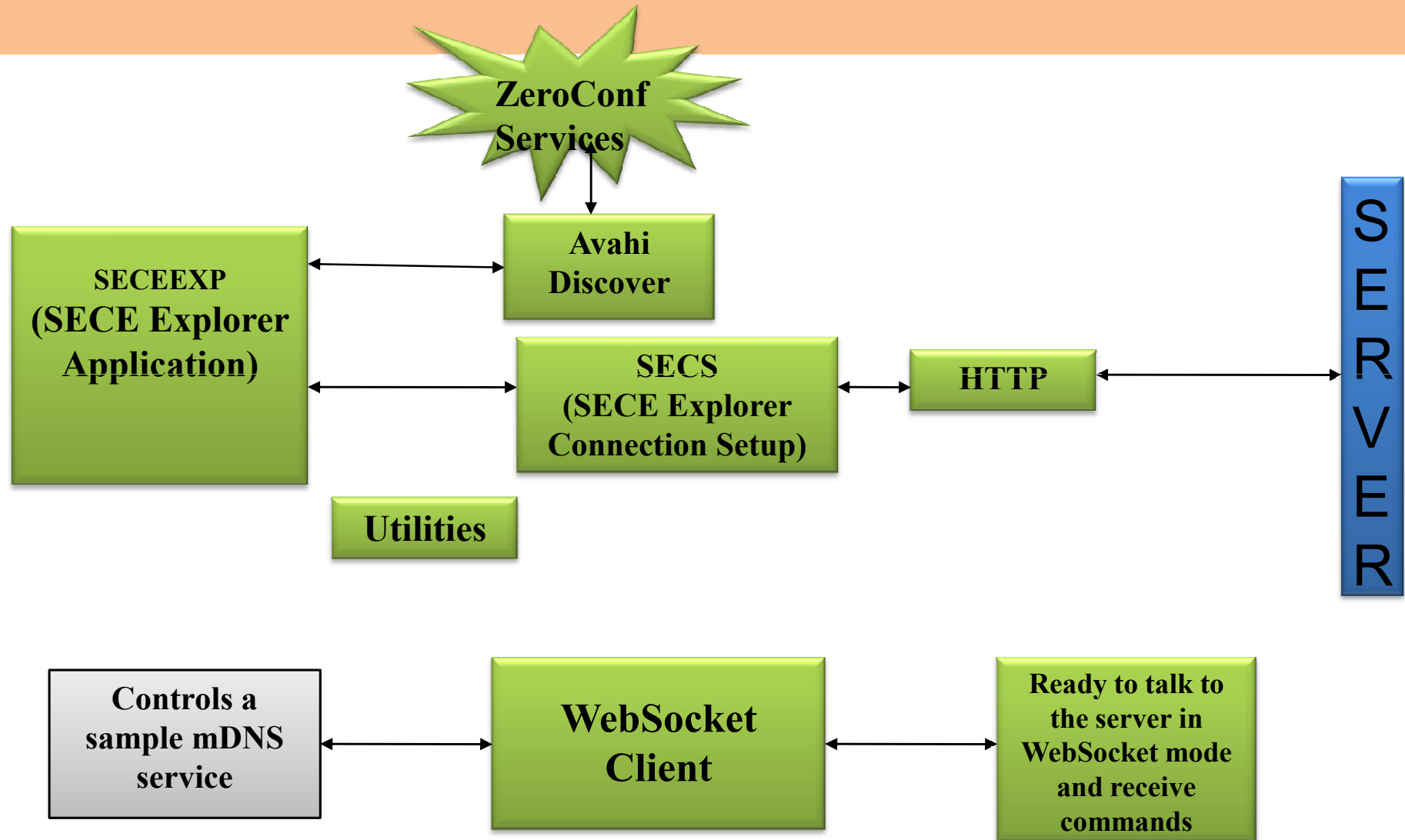
Client (SECE Explorer)

- mDNS (ZeroConf) services discovered using AVAHI Library.
- Device details (like IP address, add/remove device) transformed into structured format and passed on to the module that communicates with the server.
- HTTP Client using libCurl developed for communication with the server.
- JSON used to send the service details to the server. (HTTP POST used)

Client (SECE Explorer)

- WebSocket client developed to receive commands from the server.
- Parse a sample command locally (reading a JSON file) to control a sample mDNS service.
- A sample mDNS service created (which is discovered and sent to the server).
- Commands sent by the SECE Explorer WebSocket Client to the sample service. The sample service displays the commands.

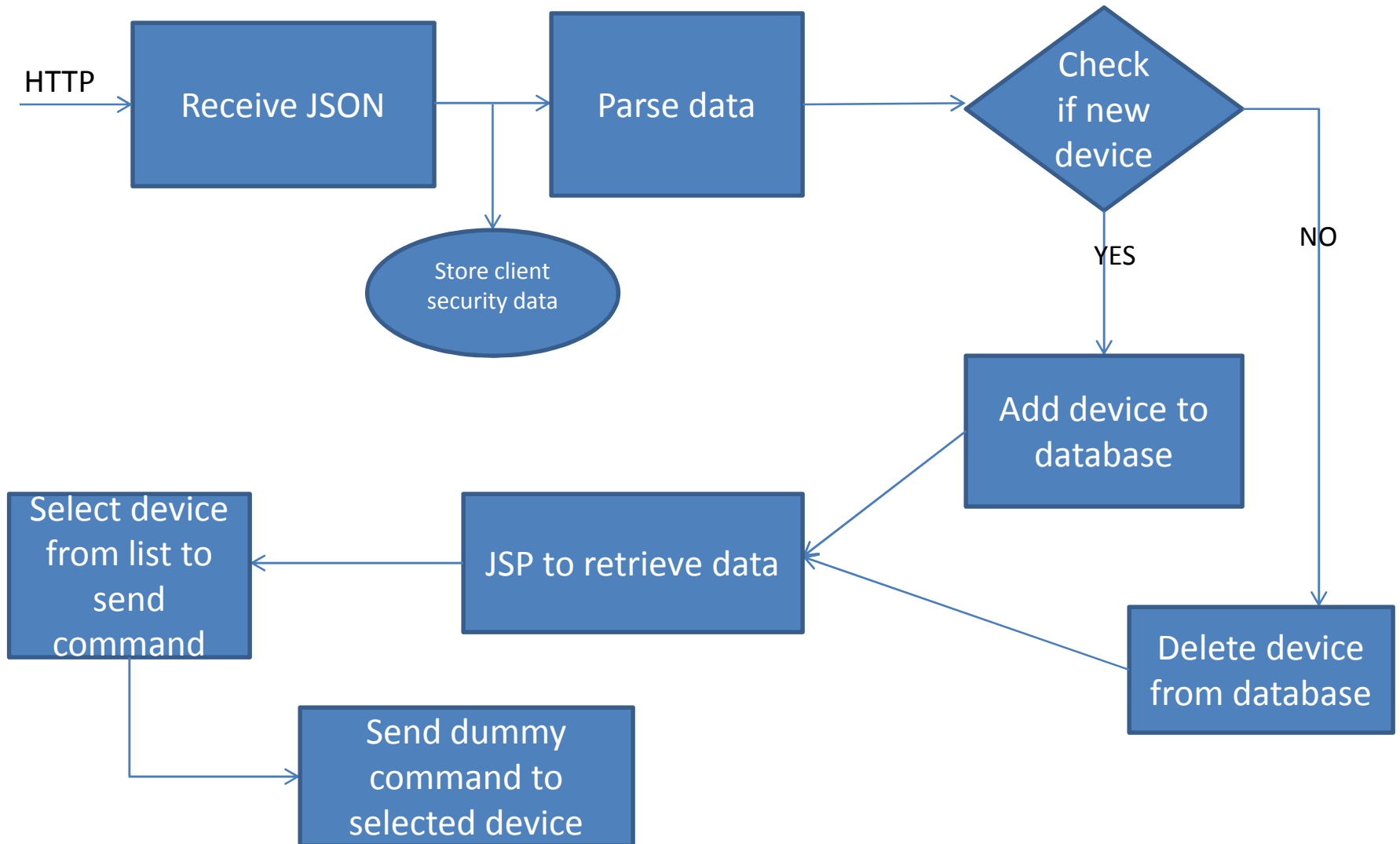
Client Code & Architecture



Server

- On receiving data from client, the Java Servlet parses JSON data and check for device status
- If device does not exist, insert into MySQL table in database
- If device has moved out of network and marked for deletion, delete the device
- Display list of available devices on webpage using JSP
- Select a device from dropdown and send a command to the device
- The command will be displayed in the console locally at the server.

Server Code & Architecture



Future Scope

- Make SECE Explorer control an actual service as per commands from SECE server.
- Integrating our SECE server with main SECE server.
- Add a security feature (probably light weight) in the SECE Explorer.
- Develop UPnP discovery mechanism.



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THANK YOU

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