

MICHIGAN STATE
UNIVERSITY

Alpha Presentation

Design, Fly, and Compete Sim Suite V2.0

The Capstone Experience

Team Boeing

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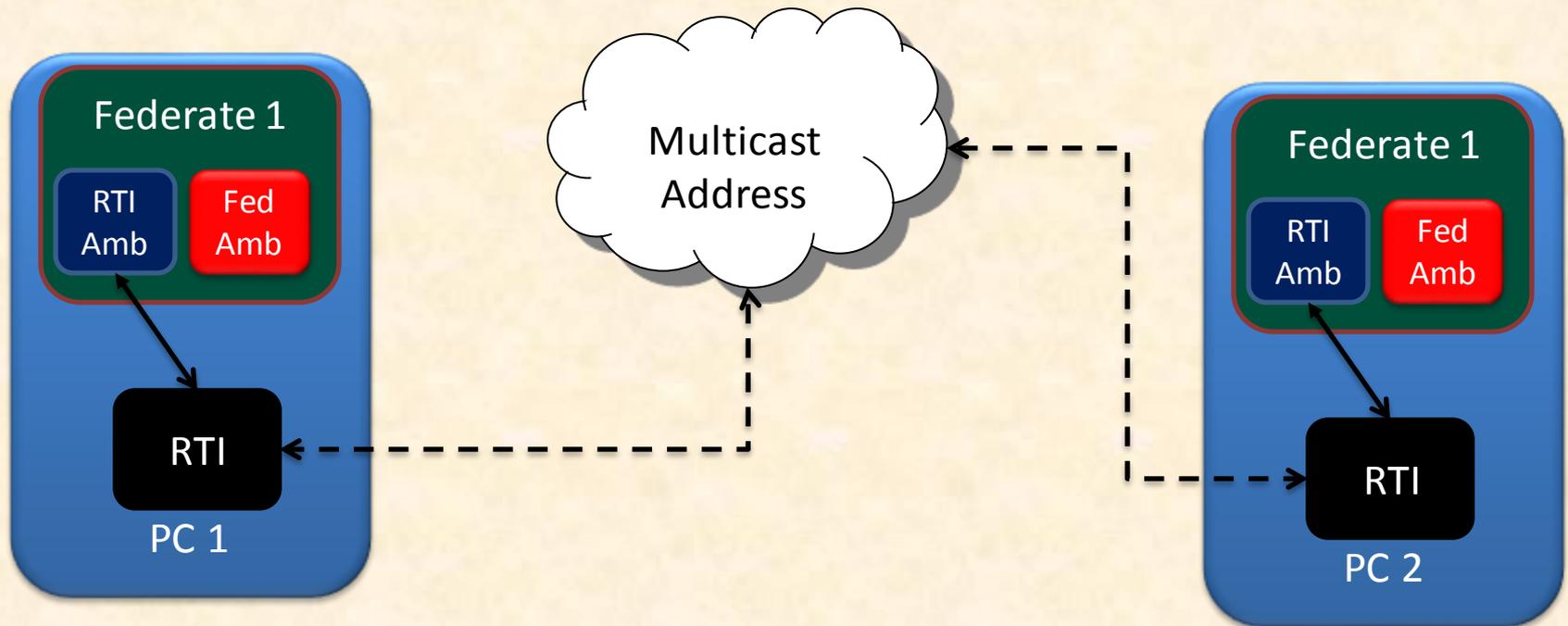


*From Students...
...to Professionals*

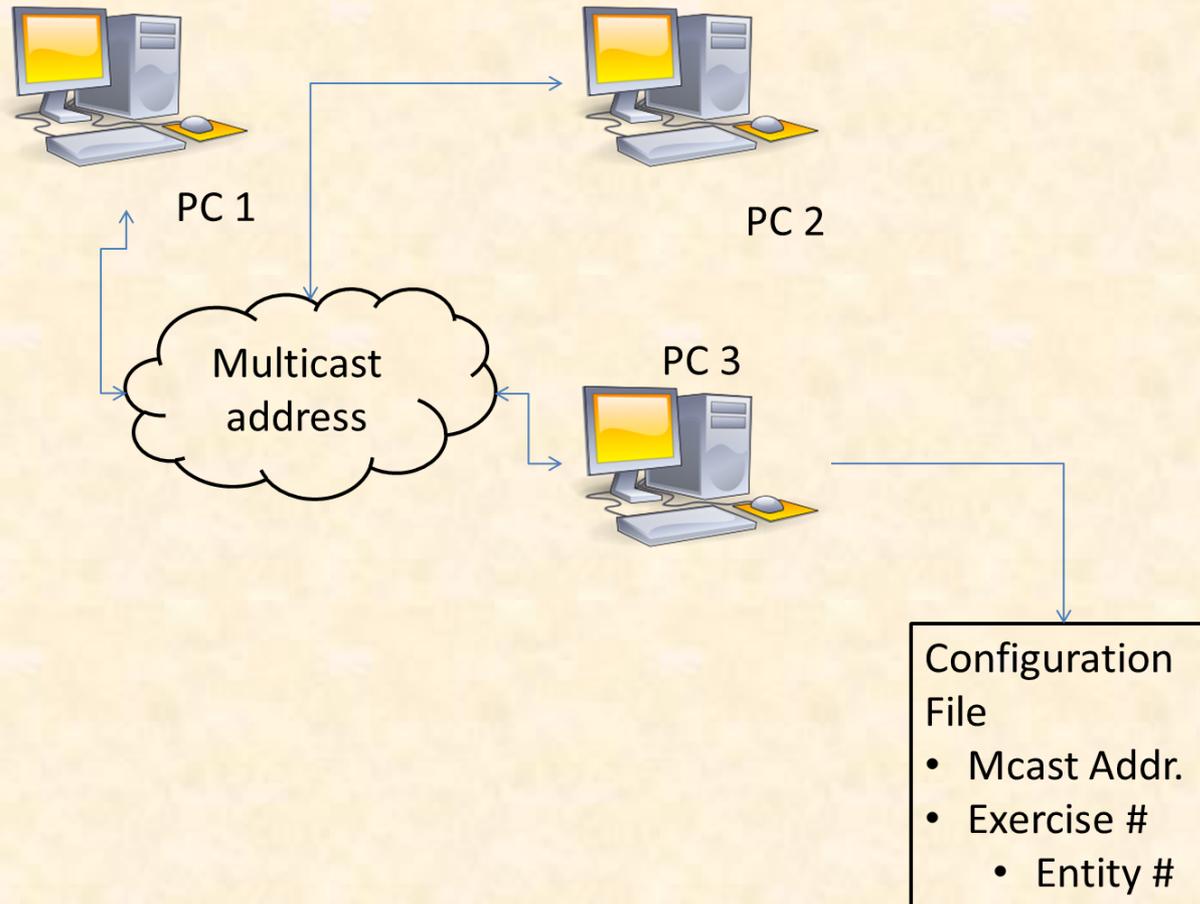
Project Overview

- Extending previous project
- HTML5 proof of concept
- Networking across all builds
 - DIS and HLA for standalone
 - Websockets for web build

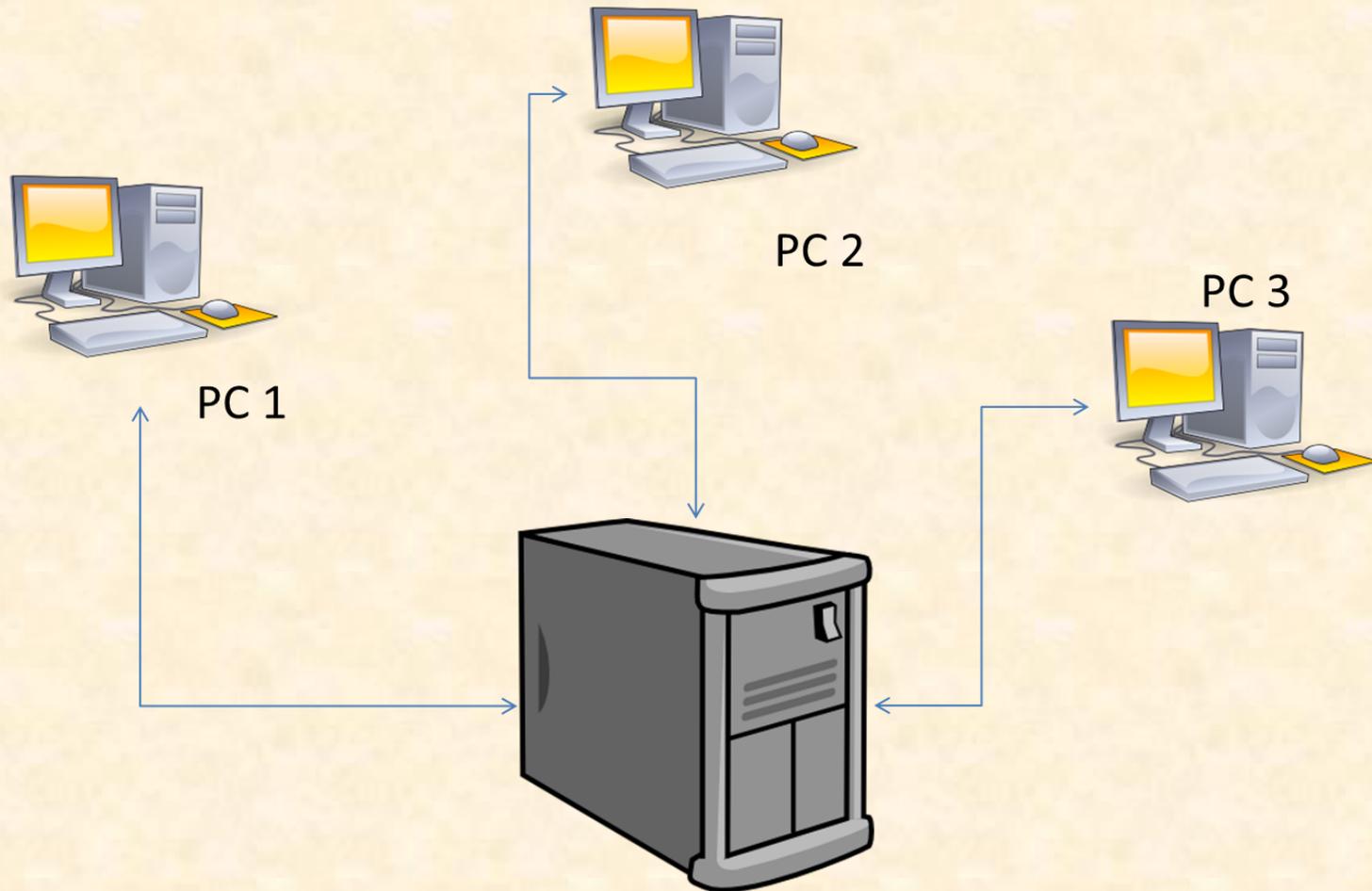
HLA System Architecture



DIS System Architecture



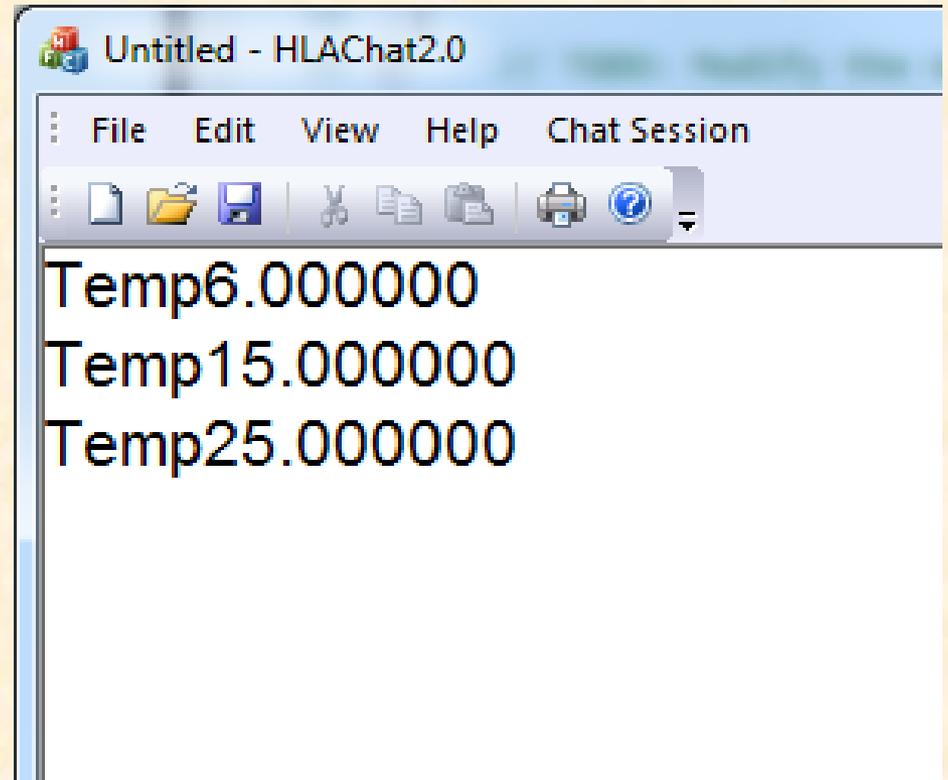
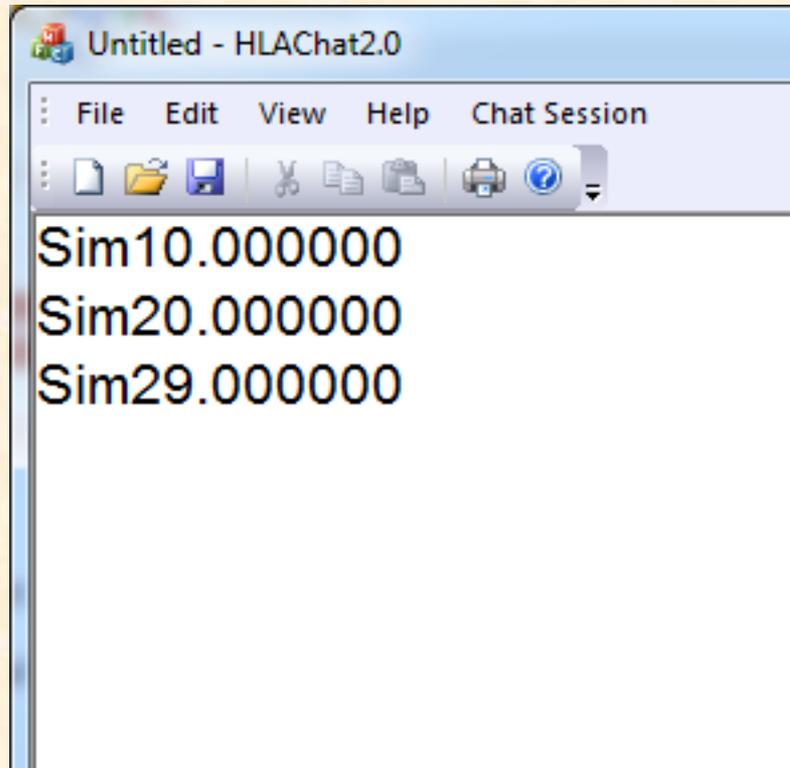
Websockets System Architecture



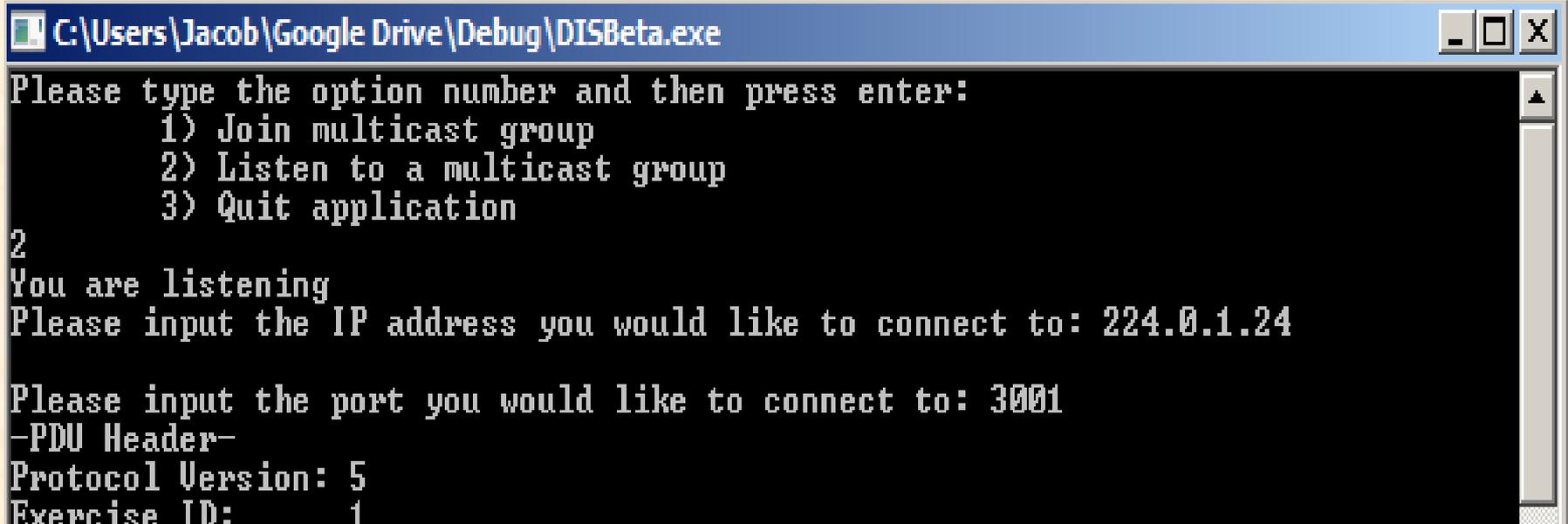
Multiplayer Concept



Using HLA



DIS Command Line UI



```
C:\Users\Jacob\Google Drive\Debug\DISBeta.exe
Please type the option number and then press enter:
    1) Join multicast group
    2) Listen to a multicast group
    3) Quit application
2
You are listening
Please input the IP address you would like to connect to: 224.0.1.24
Please input the port you would like to connect to: 3001
-PDU Header-
Protocol Version: 5
Exercise ID: 1
```



DIS Packet Contents

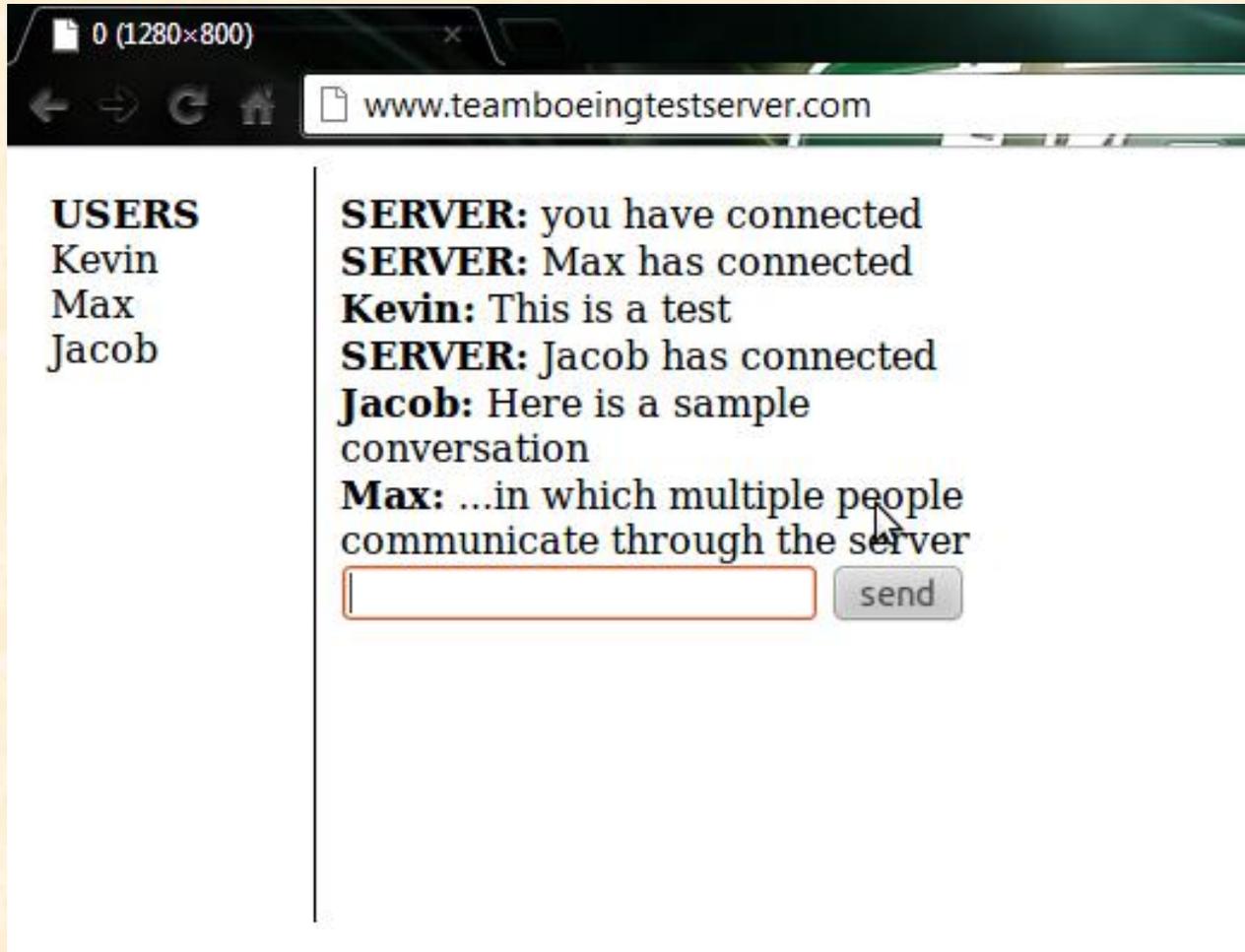
```

Please input the port you would like to connect to: 8881
-PDU Header-
Protocol Version: 5
Exercise ID:      1
PDU Type:        1
Protocol Family: 1
Time Stamp:      0: 199038404
PDU Length:      144
-Entity State PDU-
Entity ID:
  Site:          1
  Application:   3001
  Object:        3
Force ID:        1
Number Of Articulation Params: 0
Entity Type:     3,1,225,3,0,1,0
Alternative Entity Type: 3,1,225,3,0,1,0
Linear Velocity: X: 0, Y: 0, Z: 0
Entity Location: X: -2.61273e+006, Y: -4.0807e+006, Z: 4.13459e
+006
Entity Orientation: Psi: 1.0013, Theta: -0.861076, Phi: -3.14159
Lifeform Appearance:
  Paint Scheme:  0
  Damage:       0

```



Using Websockets



The screenshot shows a web browser window with the address bar displaying `www.teamboeingtestserver.com`. The page content is divided into two columns by a vertical line. The left column, titled **USERS**, lists the names Kevin, Max, and Jacob. The right column shows a chat log with the following messages: **SERVER:** you have connected, **SERVER:** Max has connected, **Kevin:** This is a test, **SERVER:** Jacob has connected, **Jacob:** Here is a sample conversation, and **Max:** ...in which multiple people communicate through the server. At the bottom of the right column, there is an empty text input field and a `send` button.



What's Left To Do?

- Integration of networking protocols
 - HLA
 - DIS
 - websockets
- Multiplayer functionality
 - Interpret packets received over network
 - Run simulation with multiple players in real time
- Web port
 - Put basic game functionality in browser build
 - Prove that game can be ported to browser

