SSNoC Final Presentation

SV7 Warriors

Contents of the presentation

- Vision of the SSNoC

- Functionalities

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Vision SSNoC

Emergency situation:

- Communication is disconnected
- Transportation and supply are cutted off
- People are wounded or get trapped...

What we need in such situation:

- Communication
- Supply management (food/water)
- Location information
- Damage/situation report
- ...

Functionalities

General functionalities:

- Join community
- Chat publicly
- Chat privately
- Post announcement
- Search information
- Measure performance
- Administer profile

Unique functionalities:

- Share location
- Send image
- Supply management
- Video chat

Functionalities

Unique functionality -- Share location

- Using Geolocation api
- Get the latitude and longitude of the user's current location

Get Position

Latitude: 37.413

Longitude: -122.058

Submit

Share Status

Your Name:	FeiXu
Your Status:	OK
Your Supply:	Water: , Food:
Your Location:	CMUSV building 19 (37.413, -122.058)
Last Update:	4/25/2016, 9:29:26 PM

OK

CMUSV building 19

Water supply

Food supply

Get Position

Latitude: 37.413

Longitude: -122.058

Submit

Functionalities

Unique functionality -- Share location

- See others' shared location

- Get the direction and distance of other people

User Directory   takuma

Get Position

FeiXu	VideoChat	CMUSV building 19	4/26/2016, 10:57:00 AM
Online Water: 10;Food: 6		NE 5 m	

takuma	Help	CMUSV building 19	4/26/2016, 10:29:50 AM
Online Water: 15;Food: 10	VideoChat	N 3 m	

qqqqq	Emergency	CMUSV building 19	4/26/2016, 10:27:29 AM
Offline Water: 20;Food: 10	VideoChat	SE 3 m	

SSNAdmin	OK		
Offline Water: ;Food:	VideoChat		

FeiXu

Status: Help (Online)

Location: CMUSV building 19
                                     (37.410, -122.060)

Measure Distance   Complete Acquisition
                                     NE 4.9 m

Last Update: 4/26/2016, 11:00:05 AM

Functionalities

Unique functionality -- Send image

- Image information provide more information for damage report or rescue team than text
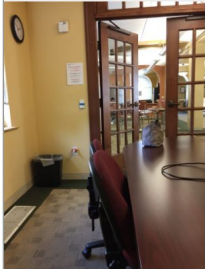- Save energy than audio calling or video chat

Functionalities

- **Send privately image to certain person**
- **Post image publicly to the public wall**

Functionalities

Unique functionality -- Supply Management

- Personal private supply management(share supply to public)
- Public warehouse(get supply from public warehouse)

Current Supply Information:

Current Water: 15

Current Food: 7

Public Warehouse:

Current Water: 17

Current Food: 18

Do you want to share supply?

| Food | Water | Share |

Notice: You cannot share water or food when less than 5 units!

Do you want to get supply?

| Food | Water | Get |

Notice.1: You cannot get water or food when you have more than 10 units!

Notice.2: You cannot get water or food more than 10 units at one time!

Functionalities

Unique functionalities -- Real time Video Chat
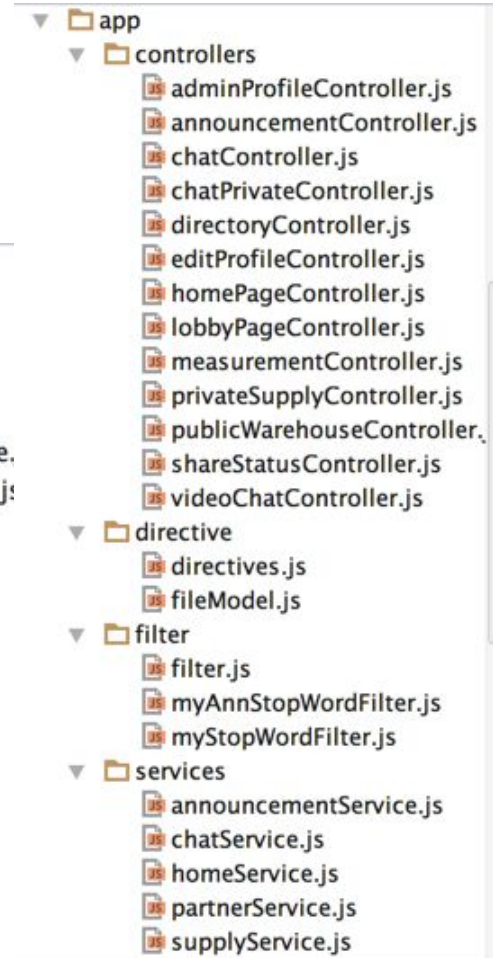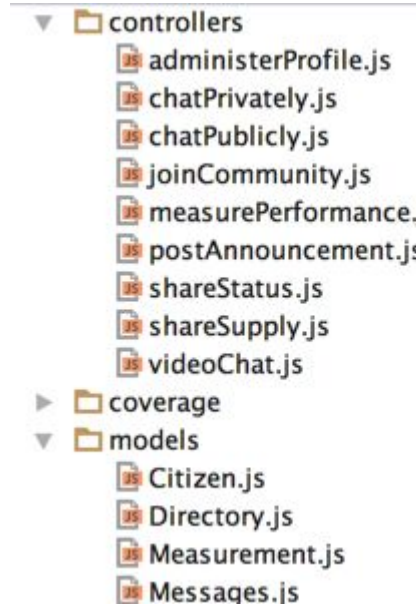
Stream control:

❖ Mute
❖ Unmute
❖ Stop
❖ Pause
❖ resume

Quality Attributes

➔ Maintainability:

◆ Isolate the faulty code
◆ Refactor for new requirement

➔ Solution:

◆ OOAD
◆ AngularJs(MVC)
◆ Naming Convention

Quality Attributes

➔ Testability:
- ◆ Easy to reveal and remove faults
- ◆ Improve the reliability

➔ Solution:
- ◆ Modularity
- ◆ Unit Test(server&client side 50 + 11)
- ◆ API(PostMan)
- ◆ Selenium

Quality Attributes

➔ ## Sustainability:
   ◆ Durable
   ◆ Minimize BBB Energy Consumption

➔ ## Solution:
   ◆ Thick client
   ◆ AngularJS:
     ● Search Information
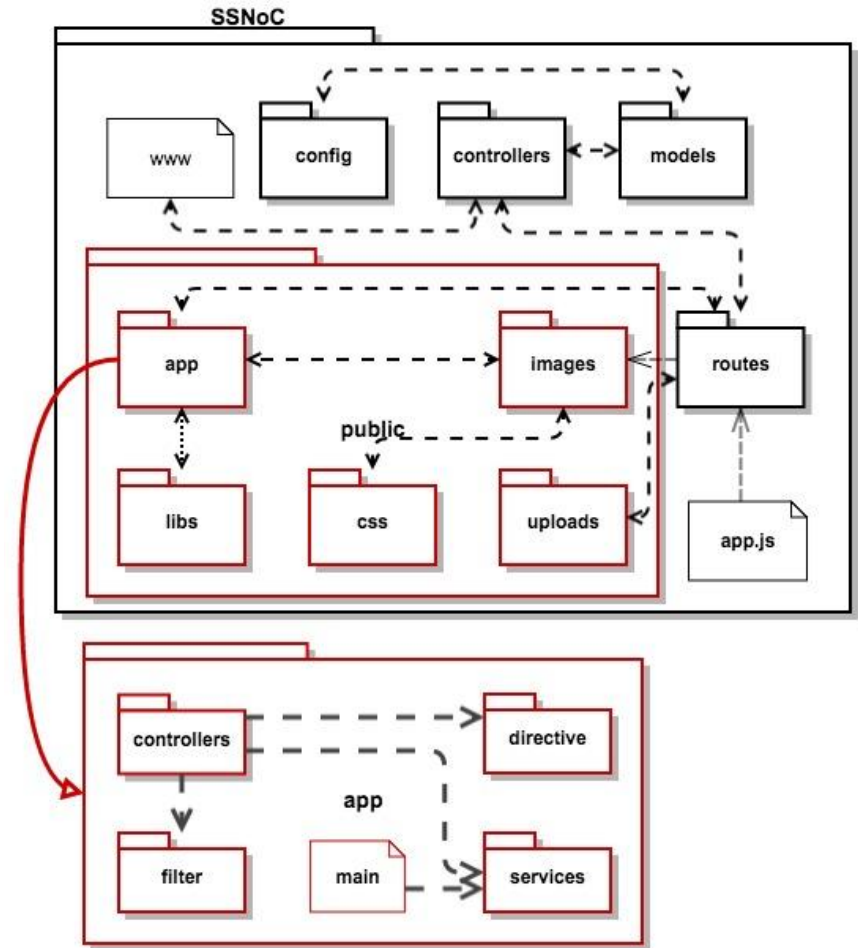
Software Architecture

➔ Architecture Styles
  ◆ Client
    ● AngularJS
    ● Karma+Jasmine
    ● WebRTC
  ◆ Server
    ● Multer
    ● Underscore
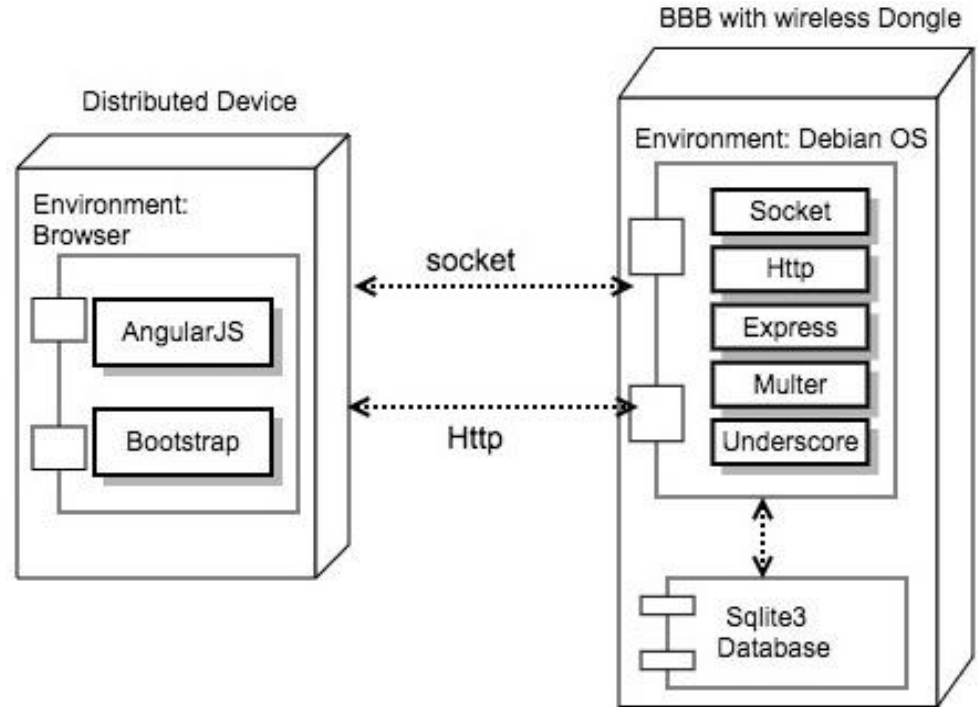
Software Architecture

→ Architecture Styles
- ◆ Client/Server
- ◆ MVC
- ◆ Object Oriented
- ◆ Event Driven
- ◆ Publisher and Subscriber

Software Architecture

➔ Design Pattern
  ◆ Filter pattern
    ● filter


```
li.message(ng-repeat="msg in messages | lowercase | stopWordFilter: query.message  " +
"| startfrom : pageSize*currentPage| limitTo: pageSize" track by $index)
```

Software Architecture

➔ Design Pattern
  ◆ Facade
    ● router

```
var router = express.Router();
var joinCommunity = require('../controllers/joinCommunity.js');
var postAnnouncement = require('../controllers/postAnnouncement.js');
var shareStatus = require('../controllers/shareStatus.js');
var administerProfile = require('../controllers/administerProfile.js');

var chatPublicly = require('../controllers/chatPublicly.js');
var chatPrivately = require('../controllers/chatPrivately.js');
var measurePerformance = require('../controllers/measurePerformance.js');
var shareSupply = require('../controllers/shareSupply.js');
```

```
router.post("/messages/public", chatPublicly.postPublicMsg);
router.get("/messages/public", chatPublicly.getPublicChatMsg);
router.get("/messages/private", chatPrivately.getPrivateChatMsg);
router.post("/messages/private", chatPrivately.postPrivateMsg);

router.post("/pictures/public", upload.single("pubicfile"), chatPublicly.postPublicPicName);
router.get("/pictures/public", chatPublicly.postPublicPic);
router.post("/pictures/private", upload.single("file"), chatPrivately.postPrivatePicName);
router.get("/pictures/private", chatPrivately.postPrivatePic);
```

Software Architecture

➔ Design Pattern
  ◆ Observer pattern
    ● Sockets

```javascript
var socketsForAdmin = {};//a map of username and socket
exports.updateSocket = function (connectedUsers) {
    socketsForAdmin = connectedUsers;
};
socket.broadcast.emit('send:active', name);
```

```javascript
socket.on('send:inactive', function (data) {...});
```
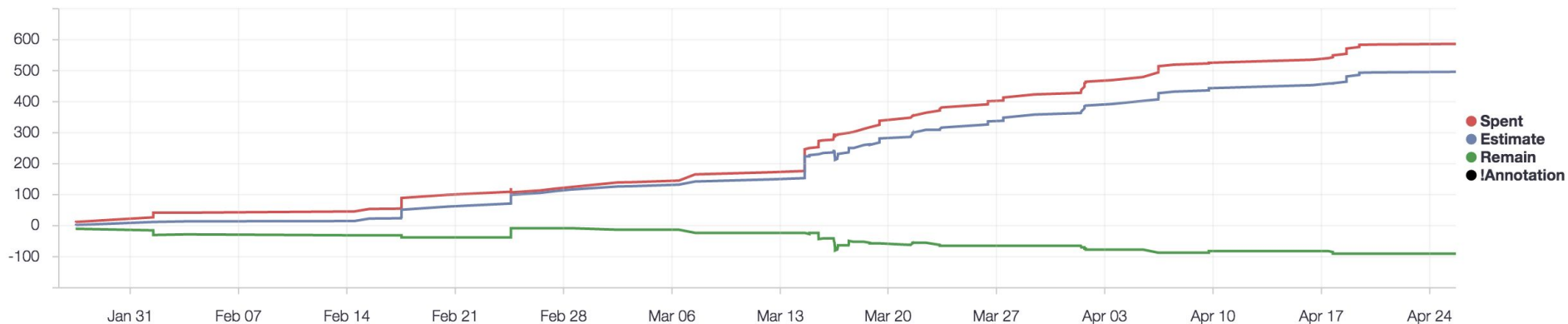
  ◆ Singleton
    ● Directory

```javascript
var directory = require('../models/Directory.js');
```

SE Practices   ★   Estimation & Planning (Trello)
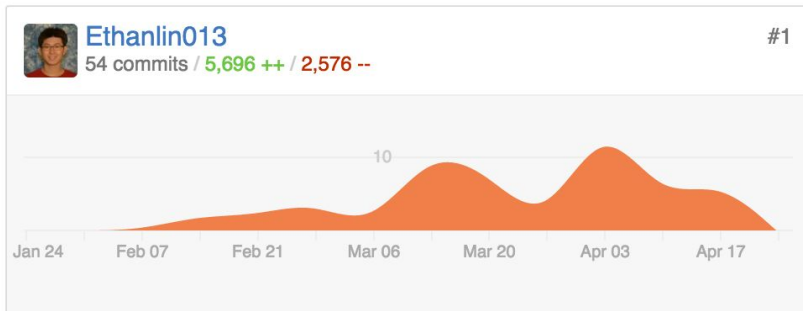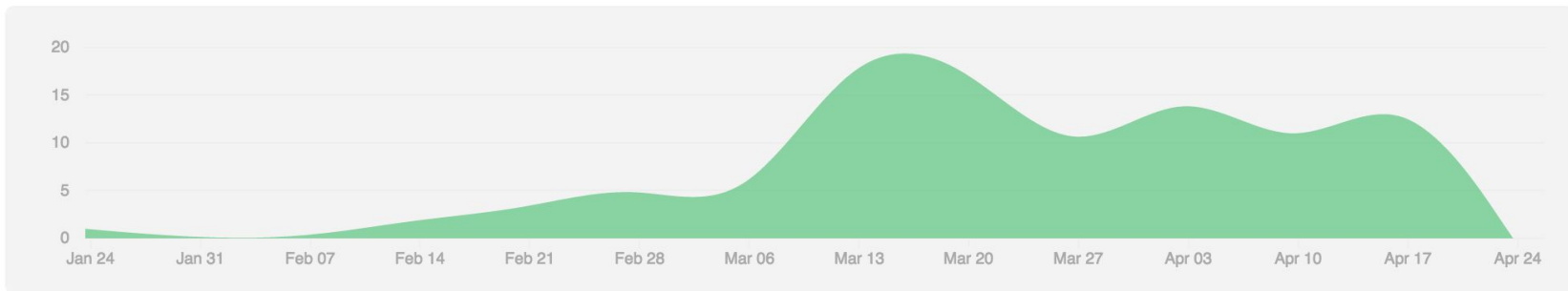
SE Practices ★ Version Control (Github)

Jan 24, 2016 – Apr 26, 2016

Contributions to master, excluding merge commits

Ethanlin013 #1
54 commits / 5,696 ++ / 2,576 --

misteroda #2
48 commits / 11,583 ++ / 15,083 --

SE Practices

★ Static Analysis
  ○ WebStorm (JSHint & JSLint plugin)
  ○ Grunt (JSHint)


```
Mac-2:S16-SV7-SSNoC ODA$ grunt testjshint
Running "jshint:files" (jshint) task

   models/Citizen.js
    158 |     return {food : Citizen.publicFood, water : Citizen.publicWater}
                                                                            ^ Mi
ssing semicolon.
   controllers/joinCommunity.js
     39 |             res.send('inactive')
                                        ^ Missing semicolon.
   public/app/controllers/editProfileController.js
     76 |                 $window.alert('You made some change(s) to t
he user, please check the instruction below the button!')
                                                  ^ Missing semicolon.
     84 |                 $window.alert('failed to update profile!')
```

SE Practices

★ OOAD

★ Pair Programming

★ Code Review

★ Unit Test / Integration Test / Coverage with CI

★ User Story / UI mockup

★ Refactoring

Lessons Learned

What worked well

★ Team Management
  ○ Version Control
  ○ Regular Meeting
  ○ Task Assignment

Use Case	+ Efficient + Getting familiar with both sides technology - Nasty merge conflict - Inconsistency (technical debt)
Front End Back End	+ Consistent design and coding style + Involved code reviews + Take advantage of the strengths (if you have) - Many communications

Lessons Learned

What worked well

★ Testing
  - Unit Test
  - Integration Test
  - CI
  - Code Coverage
  - Client-side Testing

```
Unit Test for Share Supply
  ✓ Update supply
  ✓ Give supply with success
  ✓ Give supply with failure
  ✓ Get supply with success
  ✓ Get supply with failure
  ✓ Delete All Data in DB


  52 passing (298ms)


===============================================================
Writing coverage object [/tmp/circle-junit.8y2L7fH/coverage/coverage.json]
Writing coverage reports at [/tmp/circle-junit.8y2L7fH/coverage]
===============================================================

========================= Coverage summary =========================
Statements   : 96.46% ( 191/198 )
Branches     : 84.78% ( 39/46 )
Functions    : 93.33% ( 42/45 )
Lines        : 96.46% ( 191/198 )
====================================================================
>> Done. Check coverage folder.

Done, without errors.
```

✓ SUCCESS	cmusv-fse / S16-SV7-SSNoC / master #149 Complete administer profile	5 days ago	02:15 92006d8
✓ SUCCESS	cmusv-fse / S16-SV7-SSNoC / master #147 clientside socket	6 days ago	02:28 98a7055
! FAILED	cmusv-fse / S16-SV7-SSNoC / administer #148	6 days ago	02:08 98a7055
✓ FIXED	cmusv-fse / S16-SV7-SSNoC / master #146 modifeid	6 days ago	02:16 23110fc
! FAILED	cmusv-fse / S16-SV7-SSNoC / master #145 added docs	6 days ago	01:46 9f59615
✓ FIXED	cmusv-fse / S16-SV7-SSNoC / master #144 fixed announcement	6 days ago	02:46 314e0d4
! FAILED	cmusv-fse / S16-SV7-SSNoC / master #143 change file name	6 days ago	02:07 2e5829e

Lessons Learned

What could be improved

➔ Time management
➔ Learning Method

Thank you