

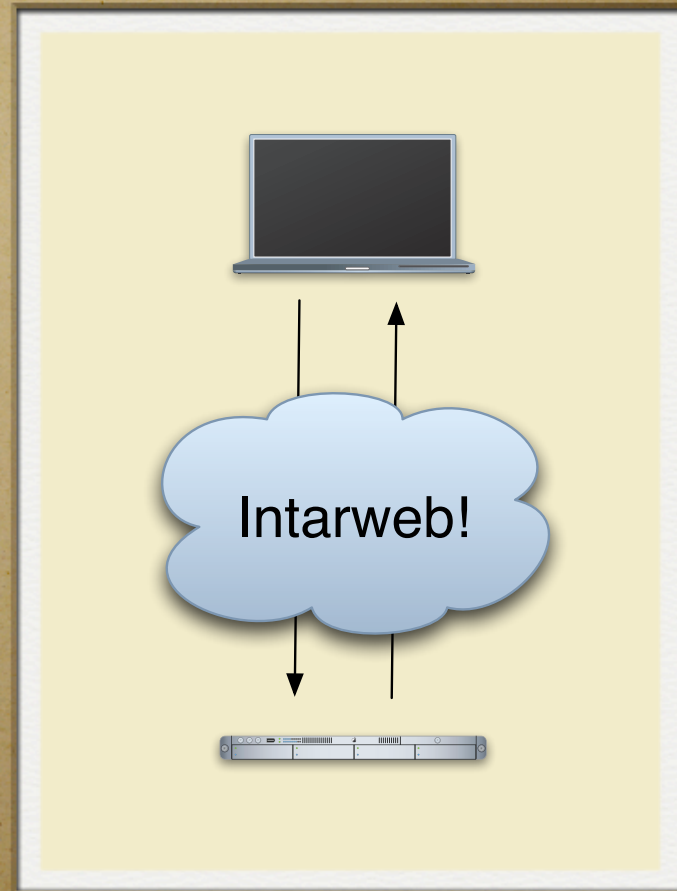
Responsive GUI Web Applications

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HTTP

One Request
One Response



HTML

- ✓ Good for your thesis
- ✗ Bad for User Interfaces

JavaScript

- Runs Client-Side
- Can Change Page
- Can Make Requests

Event Handlers

- onclick
- onkeypress
- onsubmit

Events are
stuck in client!

Client-To-Server

```
onclick="
  this.src=
    '?event=click'
"
```


Server-To-Client

```
getNode(  
    'output'  
) .innerHTML =  
    'You clicked!'
```


Simple CGI

Demo

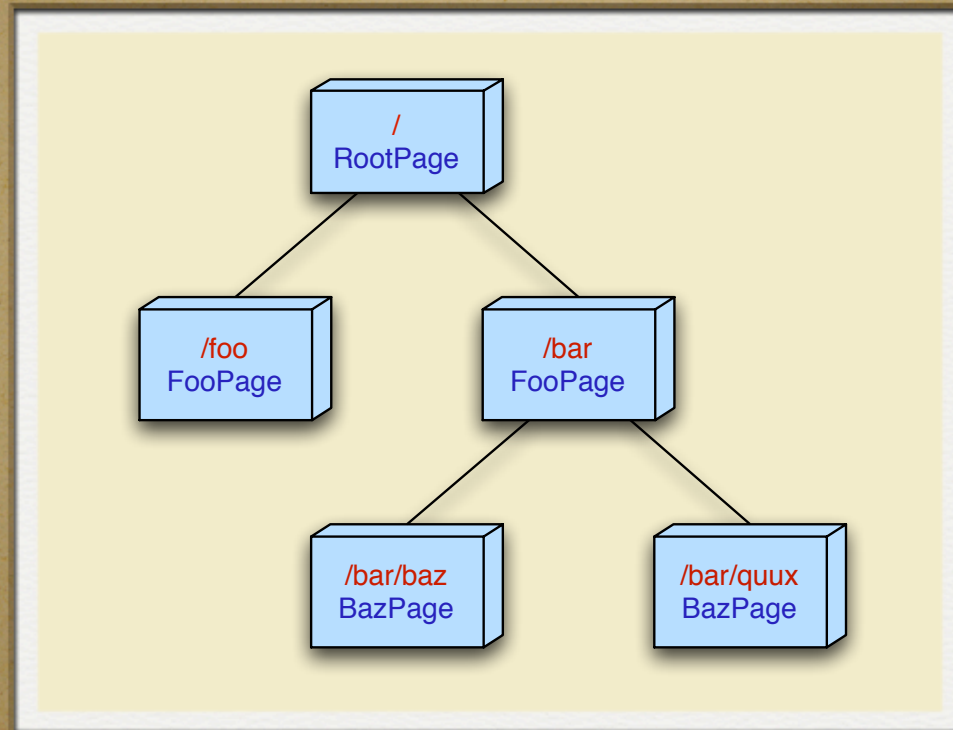
novow

Nevow

- Python web framework
- As much Python as possible
- Abstracts these ideas

stan

```
html[
  head[
    title[
      "Hello" ] ],
  body[
    h1(style="color:red" ) [
      "Hello World" ] ] ]
```

Object Publishing

Nevow Client-To-Server

livepage.handler

```
@livepage.handler  
def onclick(client):  
    print "Clicked!"
```


Embed the Handler

```
template = [  
    livepage.glue,  
    tags.img(  
        src="click.png",  
        onclick=onclick) ]
```


Build a Page

```
class OnClick(rend.Page):  
    docFactory =  
        loaders.stan(  
            template)
```


Sequence of Events

- Initial request (client)
- Page renders (server)
- JavaScript invoking
nevow_clientToServerEvent
embedded in HTML

- User triggers event handler (client)
- `nevow_clientToServerError` (client)
 - Forwards event to server
- Server handles request (server)
- Invokes Python function (server)

Nevow Server-To-Client


```
@livepage.handler  
def onclick(client):  
    client.alert(  
        'hello!')  
    )
```


- `alert(text)`
- `set(nodeId, newContents)`
- `append(nodeId, newNode)`
- `call(jsFunc, *jsArgs)`
- `sendScript(jsString)`

Asynchronous Events


```
def sendTime(C):  
    C.set('time',  
        time.asctime())  
  
reactor.callLater(  
    1, sendTime, C)
```



```
class Time(Page):  
    def beforeRender(self, ctx):  
        sendTime(ILivePage(ctx))  
  
    docFactory = loaders.stan(  
        [livepage.glue,  
        span(id='time')])
```


Demos

Chatola

Demo

LiveAnimal

Demo

Canvas

Demo

Q&A