Scaling Up with AWS

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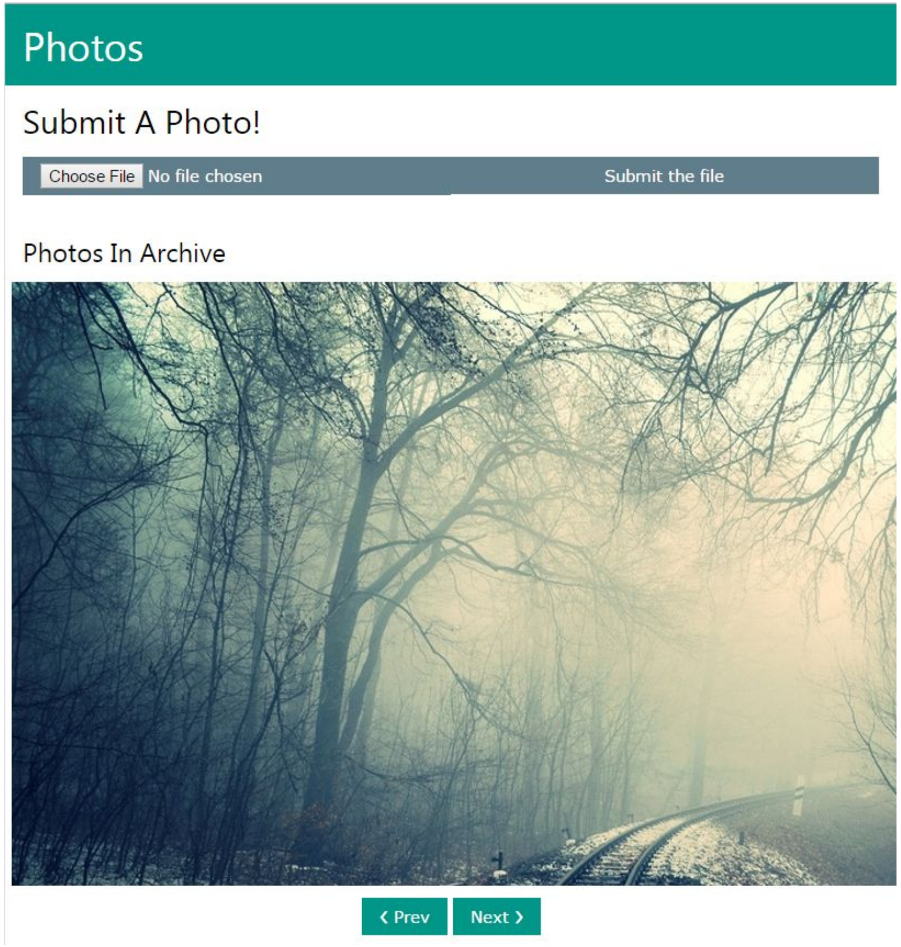
Idea

- Create a scalable image sharing website
- When a website becomes popular, need to be able to handle more requests
- Amazon (S3, DynamoDB) to scale up
- Using Condor, PhantomJS, and Apache AB to measure performance of non-scaled vs. scaled up application

Goals

- To increase the storage space available for website
- To increase the number of requests/second that can be made
- To carefully plan out design and budgeting to ensure AWS services are used efficiently

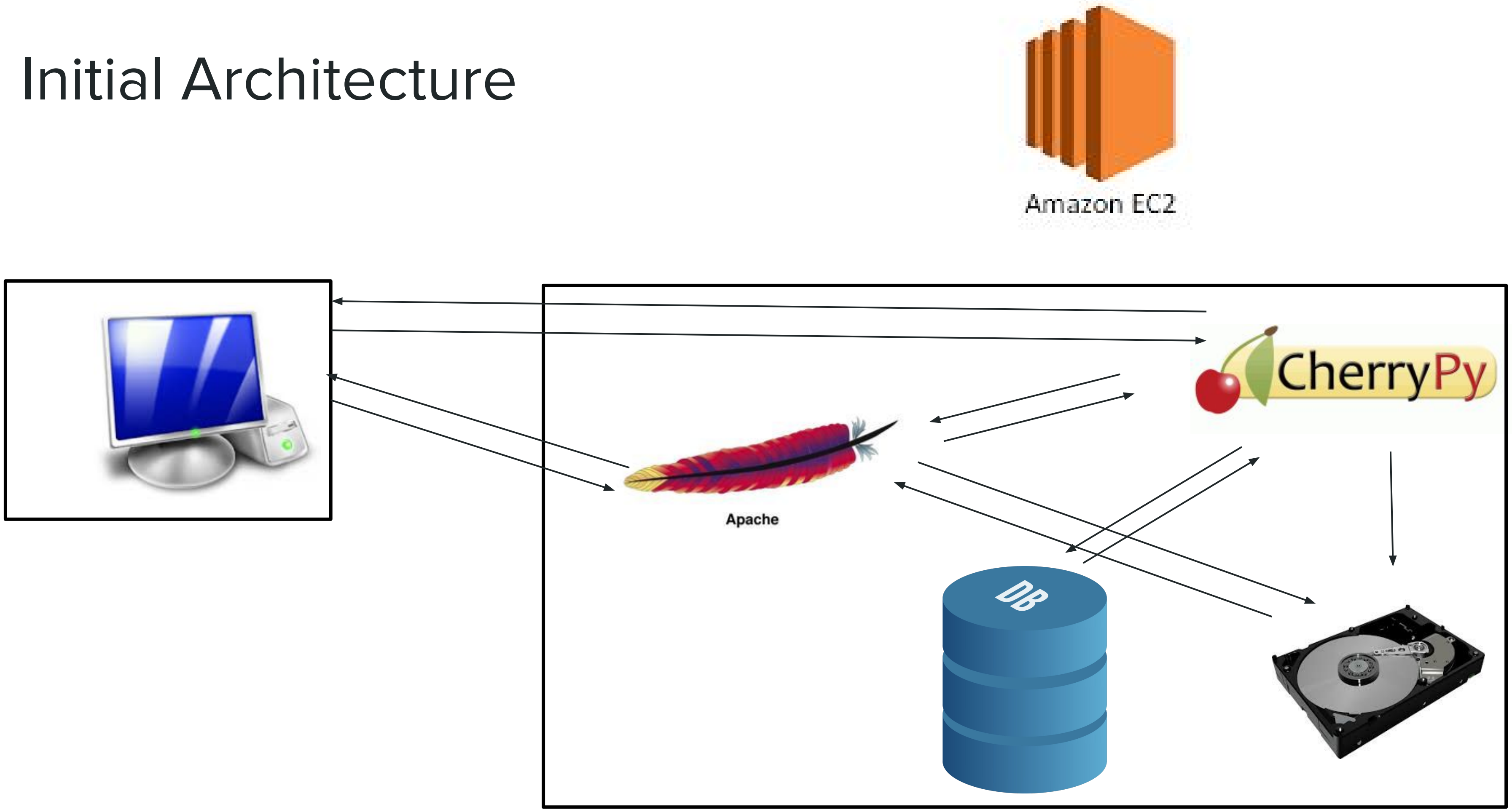
Website Design


Photos

Submit A Photo!

Photos In Archive

Initial Architecture



Website API

GET request to cherrypy:

- Returns object containing the list of image paths
- {"pictures": [{"id": 1, "name": {"name": "/Pictures/1460917065.jpg\n"}}, {"id": 2, "name": {"name": "/Pictures/1460917075.jpg\n"}] "result": "success"}

POST request to cherrypy:

- Returns object acknowledging success and image path
- {result: "success", file: "/Pictures/1460920228.jpg"}

AWS: S3 and DynamoDB

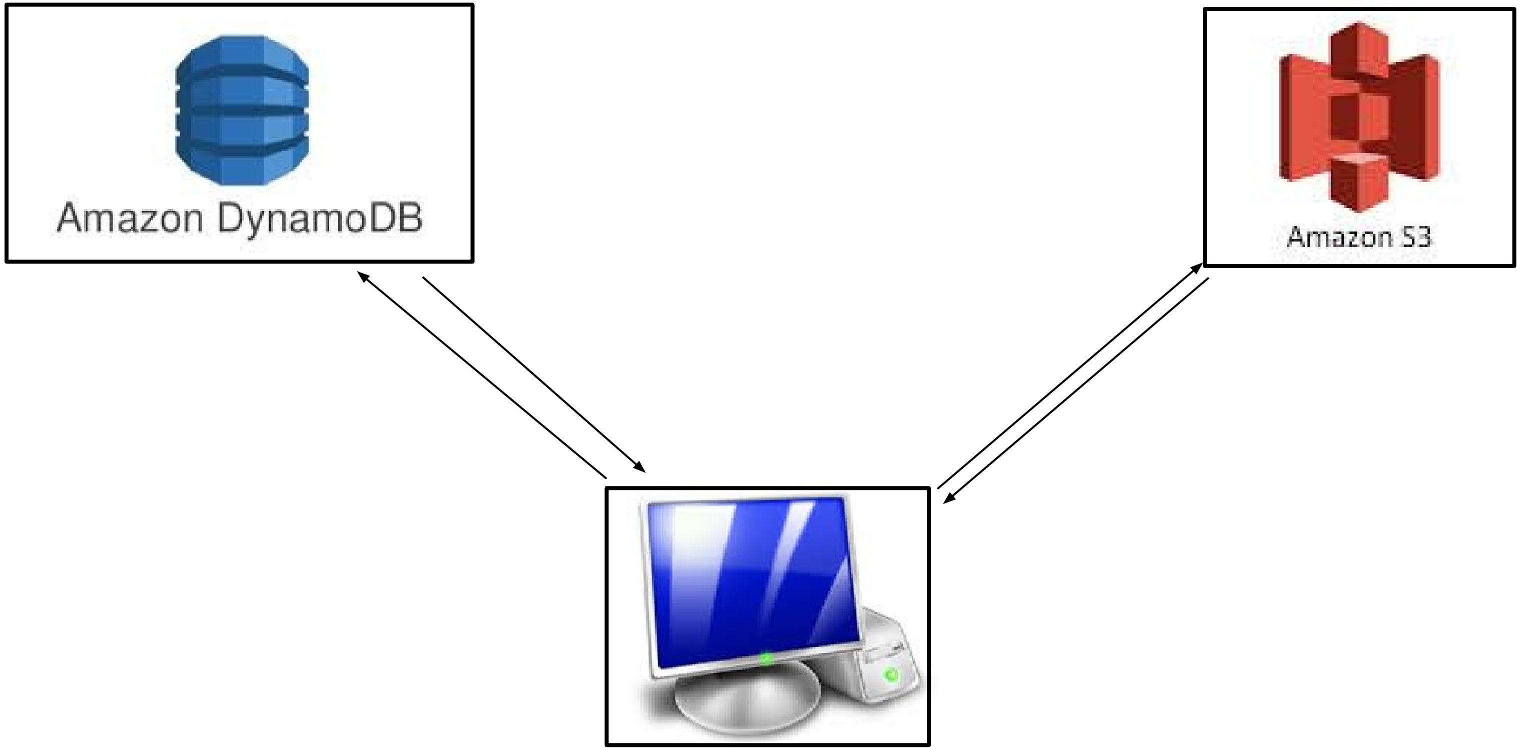
S3

- Store objects in buckets
- Uses replication of at least 3 copies
- High availability, weak consistency

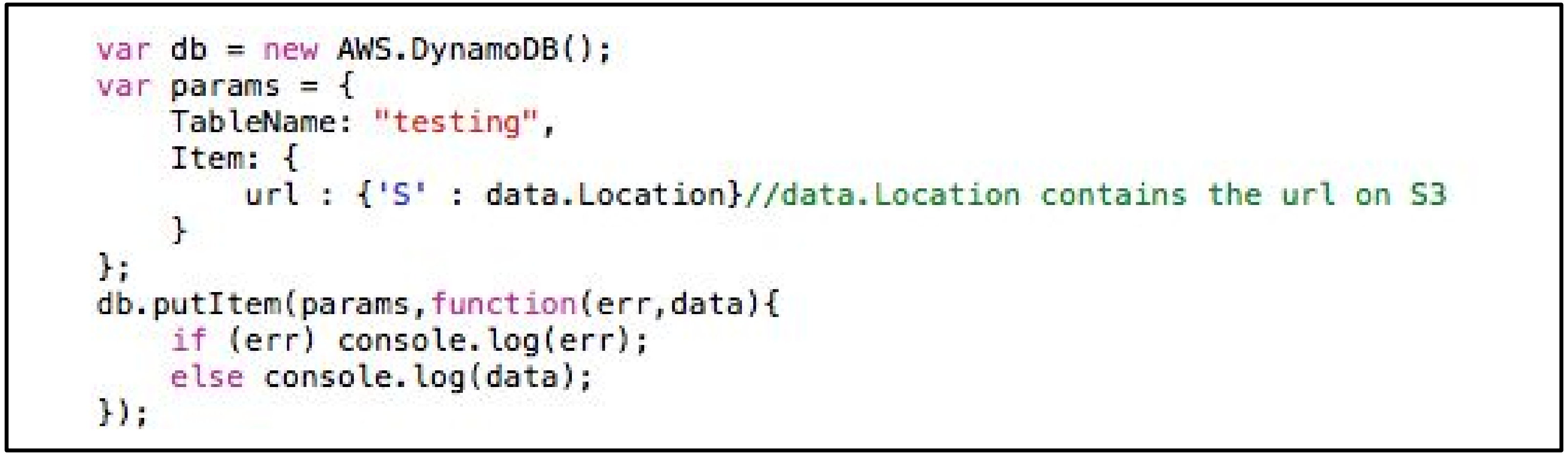
DynamoDB

- Fully managed NoSQL Database service
- Uses replication
- Optimizes availability over consistency

Scaled Up Architecture



Using Javascript to send requests to AWS



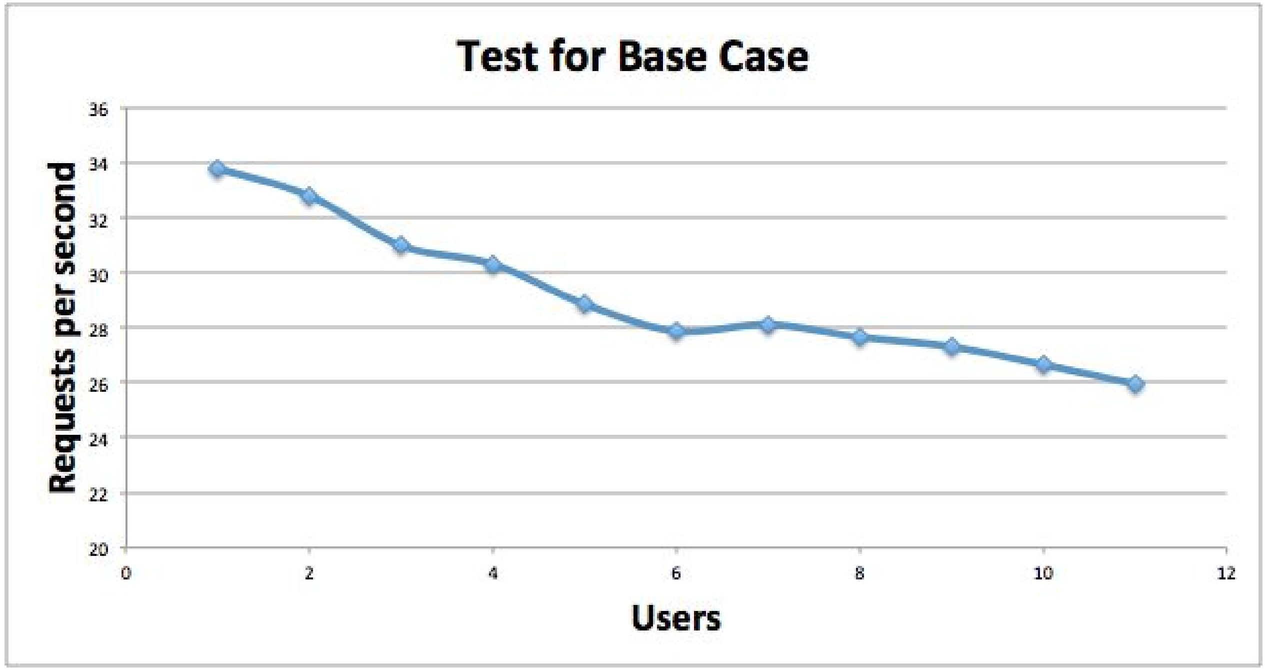
```
var db = new AWS.DynamoDB();
var params = {
    TableName: "testing",
    Item: {
        url : {'S' : data.Location}//data.Location contains the url on S3
    }
};
db.putItem(params,function(err,data){
    if (err) console.log(err);
    else console.log(data);
});
```

Challenges

- Browser caching javascript file
  - Restarting the apache service with new files
  - Files not properly loaded
- PhantomJS testing
  - For testing, you have to have the client actually make the AJAX calls to our CherryPy server and further on S3 and DynamoDB

Testing and Conclusions

# Users	Request/s
1	33.81
2	32.78
3	30.98
4	30.30
5	28.85
6	28.87
7	28.11
8	27.65
9	27.3
10	26.65



What’s next?

- Testing more cases such as “POST” requests
- More testing for the scaled up version
- Add more complexity to the website, more styling

Questions?