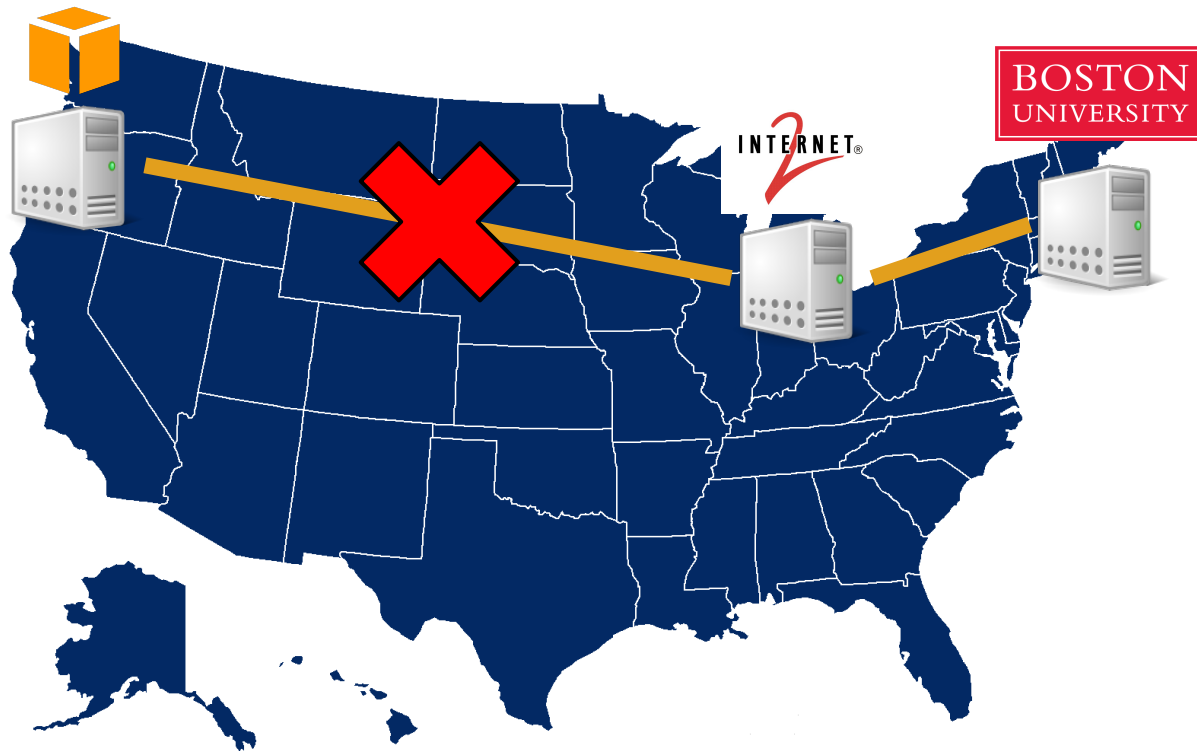


# Cloud Recovery

## Sprint 4

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# A Story...



```
traceroute to 52.11.1.237 (52.11.1.237), 64 hops max, 52 byte packets
 1  155.41.0.2 (155.41.0.2)  6.588 ms  1.178 ms  1.272 ms
 2  comm595-core-aca01-gi2-10-cumm111-dist-aca02-gi5-2 (128.197.254.197)  1.694 ms  1.174 ms
 3  comm595-bdr-gw01-gi1-2-comm595-core-aca01-gi2-16 (128.197.254.114)  168.505 ms  5.924 ms
 4  nox300gw1-v1-511-nox-bu.nox.org (192.5.89.45)  2.210 ms  2.634 ms  2.568 ms
 5  192.5.89.22 (192.5.89.22)  2.749 ms  2.019 ms  1.945 ms
 6  nox1sumgw1-peer-nox-internet2-192-5-89-18.nox.org (192.5.89.18)  14.427 ms  14.577 ms
 7  et-10-0-0.107.rtr.chic.net.internet2.edu (198.71.45.8)  26.176 ms  24.453 ms  24.057 ms
 8  * * *
```



“We’ve been working on it for the last 3 hours...”

# ReClo Overview

## Our Purpose:

Affordable, simple recovery of failed servers

## Our Clients:

Small to medium-sized businesses  
(franchise stores or doctors offices)

## Key Features:

### Backup Manager

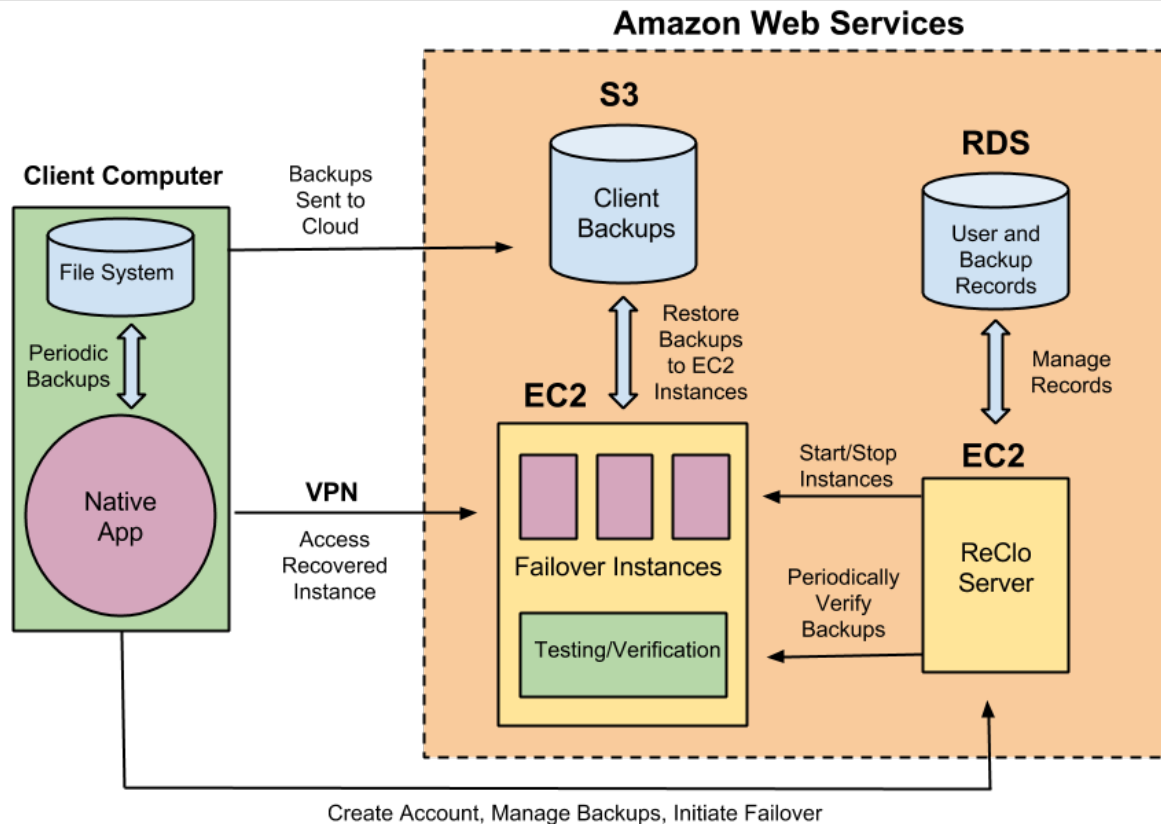
performs regular backups and pushes them to AWS

### Recovery Manager

starts new instance in EC2 from a backup,  
allowing users to access their data



# Architecture

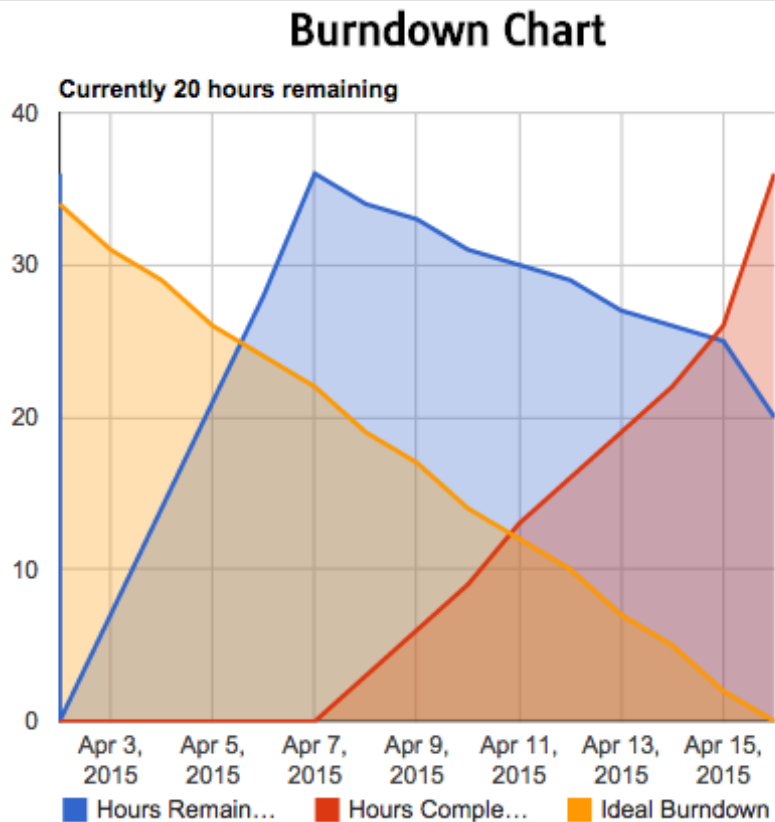


# This Sprint: Our Goals

- Upload backups to S3
- Start new EC2 instances from vhd backups
- Configure and connect to restored instances
- Finish Backup Manager
- Finish Recovery Manager

... finish **everything!**

# This Sprint: Burndown



The Devil's in the Details

Amazon's Docs Suck

The End is in Sight!

# This Sprint: Trello

**EC500 - Sprint 4** ☆ Private 🔥 [Burndown Chart](#)

### Sprint Backlog

 7  

Connect to recovered instance from Recovery Manager  
👤 3

Finalize/Test Installers for Backup & Recovery Manager  
👤 1 DK ET KS

Initiate recovery from Recovery Manager  
👤 3

Add a card...

### In Progress

 18  

Setup VPN Connection/RDP  
👤 8 DK ET

Upload backups to S3 from Backup Manager  
📅 Apr 10 👤 5 KS

Initiate scheduled backups from Backup Manager  
📅 Apr 10 👤 2 KS MX

Testing/Verification - test that a new instance started correctly  
👤 3

Add a card...

### Done

 26 11  

Register/Login/Logout from Backup Manager & Recovery Manager  
📅 Apr 10 👤 3 👤 1 KS

Local client database to store session-specific data  
💬 1 📅 Apr 10 👤 2 👤 2 KS

Start EC2 Instance from VHD backup  
👤 📅 Apr 10 👤 21 👤 8

Add a card...



# What We Accomplished:

- Upload backups to S3  
(incremental and full)
- Start new EC2 instances from vhd backups  
(just can't connect to them yet)
- Finish Backup Manager  
(completely finished)
- Recovery Manager UI  
(the real one)



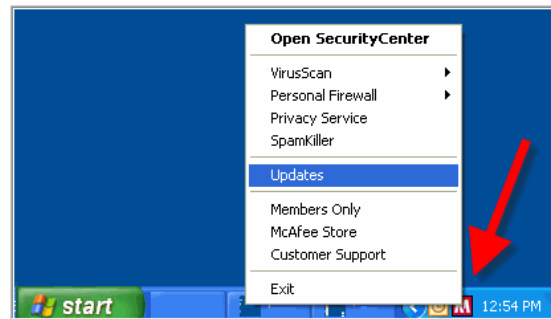
Amazon S3



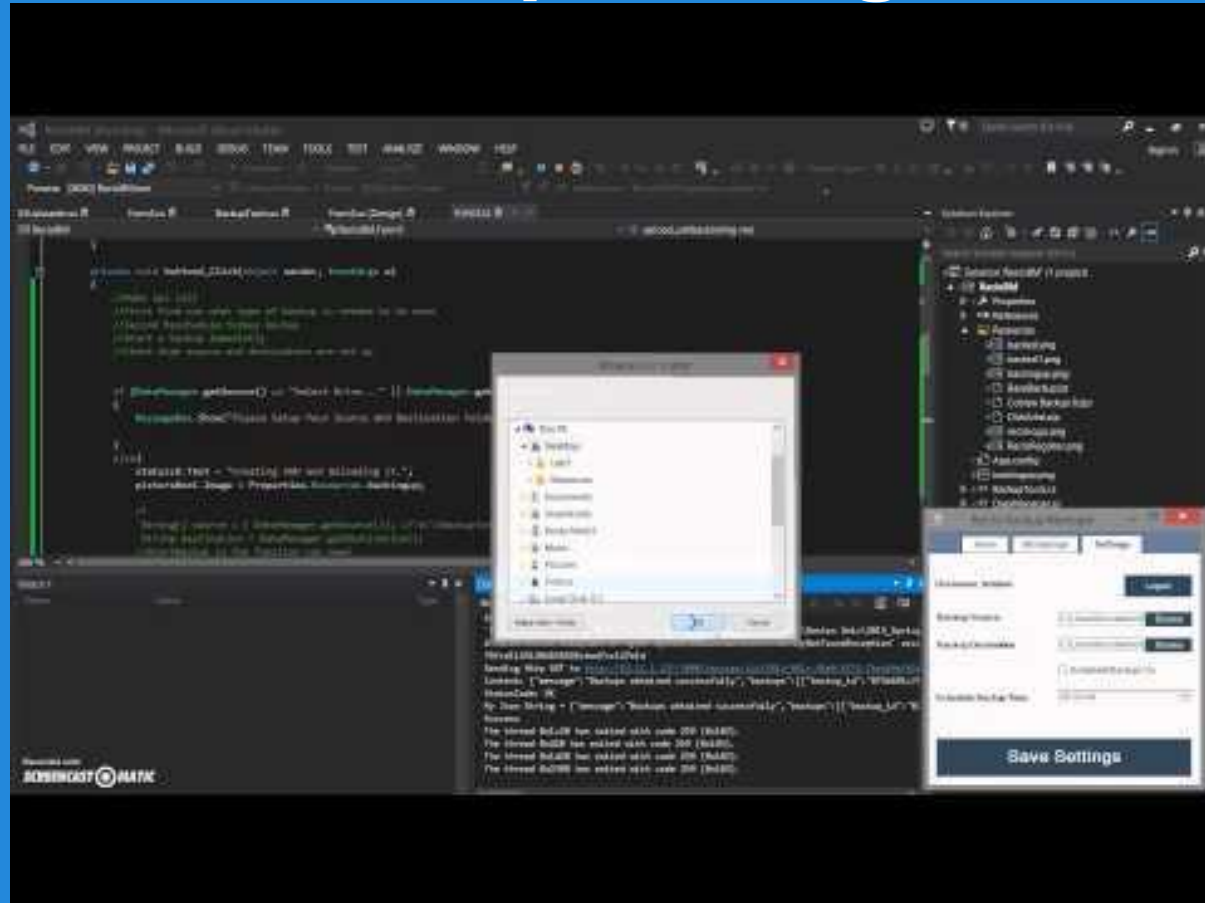
Amazon EC2

# Backup Manager

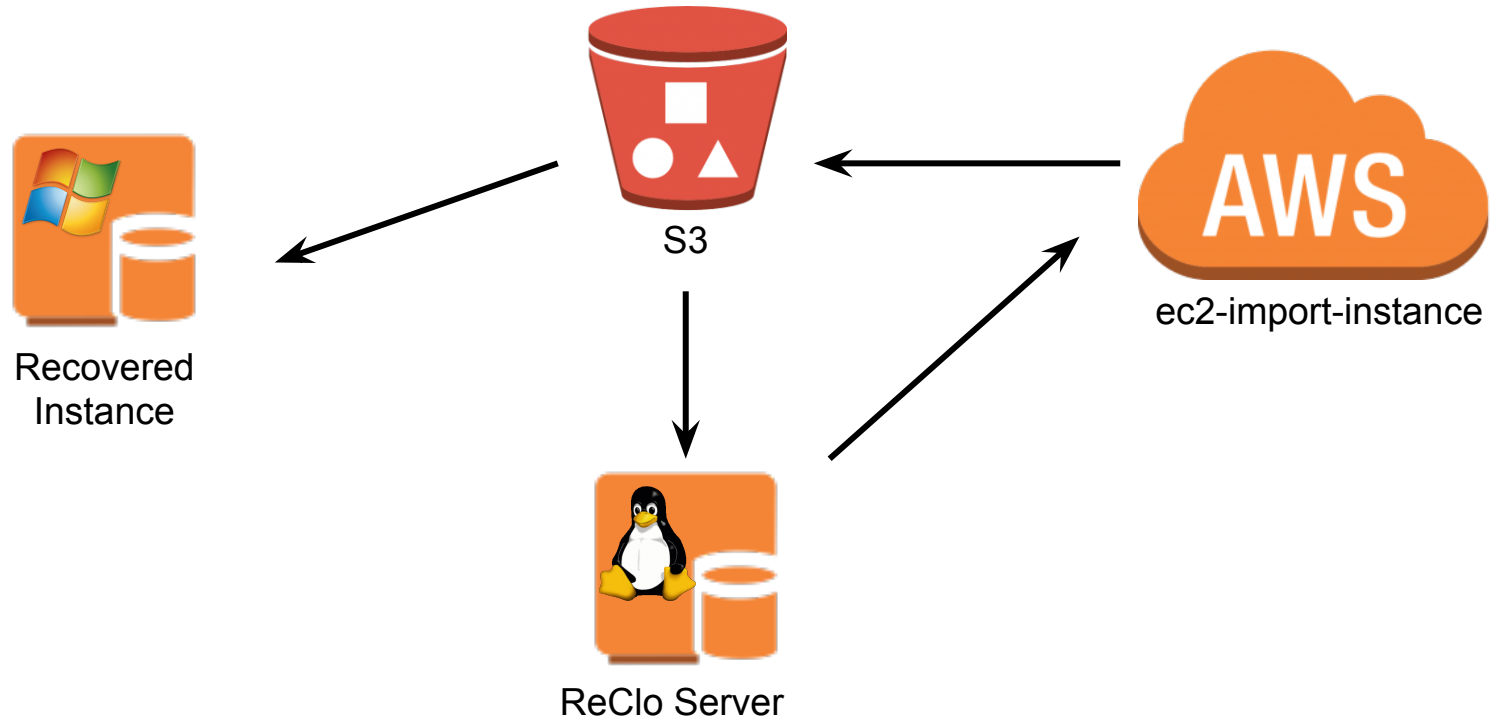
- Integrated the S3 Upload and Powershell to the Backup Manager
- Redesigned UI and app to be a System Tray App
- Persistent Data Using .TXT files
- Efficient Scheduler?
  - Timer
  - Windows task scheduler
    - How to interface with ui?
- Aiming for fully automated solution
- Needs polishing and breaking. But all the puzzle pieces are in one place!



# Backup Manager



# Recovering Instances



# Takes a Long Time...

**1 Hour** to recover **30GB** server

Preparation	<b>5m</b>
Import	<b>15m</b>
Processing	<b>30m+</b>
Startup	<b>5m</b>

\*\* Virtually all of this latency is due to the AWS API. Nothing we can do about it.

# VPN Connection

Pertino's API isn't released yet  
Call OpenVPN from C# code.  
RAS API



# Remaining Tasks

- Automatic VPN connection to Restored Instances
- Properly Configure New Instances on Startup
- Finish Recovery Manager
- Polish Up Backup Manager

...

Wrap it all up with a bow!



# Questions?