Using the Cloud at Seminole County Public Schools to Transform Its Infrastructure
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Cloud computing for dummies wasn't much help. Do you have cloud computing for total idiots?
About SCPS

• 67,000 students
• 7800 full time employees
• 67 schools (including charters and virtual K-12)
• One of only 10 districts to receive “A”-rating in 2014
• Largest Florida school district to receive “A”-rating in 2014
• #1 overall out of the 17 largest districts in the State in terms of FCAT 2.0 scores
• Ranked #1 in Reading, Math, & Science
Before the Cloud came along, it was not always this rosy...
Welcome to Seminole County, Florida's Natural Choice.
Pain Points

- Crippling old SAN with space consumption and IO issues
- On-premise staff email was growing out of control
- Student email could only be provided at one school
- Running many applications on antiquated UNIX servers
- Backing up critical data to DLT tapes in 13-yr old ADIC library
- DR strategy involved a lot of smoke, mirrors and duct tape
Before Cloud Storage

FBI File Room, 1944
Courtesy Vala Afshar
@ValaAfshar
I hired a consultant to help us evolve our products to cloud computing.

Blah Blah Cloud.
Blah Blah Cloud.
Blah Blah Cloud.
Blah Blah Cloud.

It's as if you're a technologist and a philosopher all in one!

Blah Blah Platform.
Cloud of Dust?

If you can smell yourself,

others have been able to for a while.
Cloud Computing?

**Cloud computing** is a method of providing information and communication technology (ICT) resources as a service. It has five essential characteristics:

- **On-demand self-service** - Ask for what you want and get it automatically
- **Broad network access** - You must have a network to access the cloud resource
- **Resource pooling** - The cloud provider manages all the resources behind the scenes so you don’t have to
- **Rapid elasticity** - Can scale up and down very rapidly to meet your needs
- **Measured service** - You only pay for what you use

- Alan Merrihew | Senior Director of Government Technology Strategy, Worldwide Public Sector | Microsoft
Sipping the Microsoft “Kool-Aid” since 2013

- Implemented ADFS, PKI, Microsoft SCCM and Endpoint Protection
- Migrated email for 7800 employees to Office365
- Offering Office365 to all secondary students (soon to all students)
- Ever-increasing use of online SharePoint, Skype, OneNote and OneDrive
- Purchased Azure subscription and received a StorSimple 8100 SAN !!
- Implemented new D2D backup appliance that replicates to Azure Cloud
- Synchronizing AD for our domains to VM’s in Azure Cloud
- Implemented ASR to easily backup 40+ Hyper-V VM’s to Azure Cloud
So... How Do You Get Your File Data in the Cloud?
It’s so Simple, it’s StorSimple!

- “You need to get one of these things. You’ll love it!”
- It has become primary storage for critical district file shares
- We have migrated 7 TB of storage to it and counting
- ~ 540 district staff no longer have slowness with logins and opening files
- Enabled us to deprecate Windows 2003 servers, killing two birds with one stone!
- Backs up in ~ 2 hours so no more 24-36 hour tape backups!
- Inline data dedupe and compression with effective local capacity of ~ 75 TB
- Total cloud capacity of ~ 230 TB
- Saved $90K on recent SAN purchase and future $$$ (power, tape storage, lic)
SCPS New and Improved Cloud Backup Strategy

Up to 230 TB

StorSimple 8100
15 TB

Cisco Nexus 3048TP
4 x 10GB + 48 x 1GB

District File Server

10Gb

1Gb

3 Virtualization Clusters
~ 340 VM’s

NetApp AltaVault
48 TB
usage overview

- USED: 12.81 TB
- PROVISIONED: 13.1 TB of 230 TB

quick glance

- Operation logs
- Change service data encryption key

STATUS
- Active

TOTAL NUMBER OF DEVICES
- 2
**controllers**

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<th>CONTROLLER</th>
<th>STATE</th>
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<tr>
<td>Controller 0</td>
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<td>Controller 1</td>
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**hardware status**

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<tr>
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<tr>
<td>CONTROLLER 1 COMPONENTS</td>
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Run the query. Query results are not refreshed automatically.

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What’s Next for Us

- Expand migration of district and school data storage to StorSimple
- Implement ADFS in Azure to provide HA for Office365 users
- Expand use of ASR beyond Hyper-V based VM’s
- Utilize OMS (Operations Management Suite) to more manage cloud assets
- Implement Canvas in Azure to provide HA for all portal application users
- Move district web site to Azure
- Build new multi-node Hyper-V cluster and finish VM migration
- Continue sipping Microsoft “Kool-Aid”
It’s Just All Too Easy

I REMEMBER A TIME WHEN I HAD TO LISTEN TO THE TOPIC AT HAND BEFORE ADDING MY INSINCERE INPUT.

I THINK WE SHOULD VIRTUALIZE THE PROCESS AND MOVE IT TO THE CLOUD.

HEY, THAT’S A GREAT IDEA!

NOW IT’S JUST ALL TOO EASY.