Separating the cloud from the fog:
A clear path to security

Northwest Regional Data Center
Tim Brown
Executive Director, CISSP, CISA
Introduction...

- Common problems we face in security....
- What is the cloud?
- New challenges from the cloud....
- What we have done with NWRDC
The problems that we face...

- More persistent threats
  - Global
  - Political based
- Identity theft a new market
The problems that we face...

- Localized controls?
  - Can we be there all the time?
  - Is this our specialty?
    - Know our business
    - Know our customers

- Data controls
What is the Cloud?

Is it new??
What is the Cloud?

“Cloud Computing provides widely accessible on-demand, elastic computing power. These services are metered and charged back based on usage.”

Kevin T. McDonald
“Above the Clouds: Managing Risk in the World of Cloud Computing”
The early days...

- Introduced on the mainframe in the mid 1960’s with IBM System/360 Model 67
Beginnings of the cloud...

- NWRDC went to MVS/SP R1 (Multiple Virtual Storage) in 1981
- AMDAHL 470 v6
Mainframe cloud

- Can create separate logical partitions (LPAR)
- Resources can be shared across LPAR’s
- OS can be specific to an LPAR, allowing for multiple versions of OS to be run as needed
Distributed Cloud

- Host based on VMware, Microsoft, Citrix, KVM
- Various hardware
  - Blades
  - Individual servers
- Client OS can be almost anything
Cloud Types

- Public cloud
- Private cloud
- Community Cloud
- Hybrid Cloud
Cloud Services
“Whatever” as a Service

- Software as a Service (SaaS)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)
- Security as a Service (SECaaS)
- and so on and so on and so on....
Things to think about before you buy...

- Who controls your data?
- Who OWNS your data?
- What is IN your data?
- Who is responsible for data breaches of sensitive information?
  - Florida Statutes, 817.5681
Things to think about before you buy...

- Where is your data?
  - Multiple sites?
  - Multiple countries?
- Who has access to your data?
  - Cloud administrators?
  - Background checks?
Things to think about before you buy...

- Telecommunications
  - How will you connect securely?
  - Bandwidth?
- Backups?
  - Who is responsible?
  - How are they stored?
  - Where are they stored?
Things to think about before you buy...

- Disaster Recovery
  - Who?
  - Where?

- Service Level Agreements
  - Performance standards
  - Security standards
Things to think about before you buy...

- **How will you be segmented from other customers?**
  - Can they see your data? (easy)
  - Can their performance impact yours? (more difficult)

- **Are you locked into a particular performance level?**
  - Can it increase?
  - Can it decrease?
  - How changes impact cost?
Things to think about before you buy...

- **Internal standards:**
  - Do YOU have a security standard/policy?
  - How does cloud vendor fit within your standard?

- **Access controls:** Who manages authentication and verification?
Things to think about before you buy...

3rd party assessments\standards:
- Statement on Auditing Standards (SAS) No. 70
- Statement on Standards for Attestation Engagements (SSAE ) No. 16
- National Institute of Standards (NIST) 800-53
Things to think about before you buy...

- Audit Access: Will your auditors have access to review?

- Exit Strategy: So how do you get out of this?
Resources

Gartner:
SaaS Contract Negotiation toolkit

Cloud Security Alliance (https://cloudsecurityalliance.org)

Northwest Regional Data Center

- NWRDC founded in 1972 as one of four regional data centers serving State University System of Florida
- 100% self funded
- Provide services to universities, colleges, K12, as well as city, county, and state government entities
NWRDC Customers

- Universities\colleges
- State Agencies
- K-12 School Districts
- City\County government
Northwest Regional Data Center

While an auxiliary of Florida State University, we operationally report to a Board made up of our customers

- Customers can “outsource”, but continue to have a say in the operational control of the data center

- Management Committee has oversight of financial operations
- Founded as a mainframe co-op
- Floor space designed for large systems, but systems have gotten smaller
- Evolve our technology, knowledge, and business practices to meet current needs of our customers
NWRDC and State of Florida

- Founded within the State University System of Florida
- Used as the model for data center consolidation for State Agencies
  - 1 of 3 primary data centers for the State of Florida
  - Resulted in increase in state government customers, but roots are in education
NWRDC Facility

- 96 feet above sea level
- 10,000 Square Feet Raised Floor
- N+1 UPS Systems and Generator Plants
- 1000+ Amp Utility Service
- 2000 Amp Emergency Power Transfer Switch
- 10 Liebert 20 ton CRAC Units, N+1 Redundancy
- Halon 1301 fire suppression system
- 7/24/365 Onsite Security with Video Surveillance
NWRDC Services

- **Mainframe**
  - Primary application hosting
  - Hosting applications for sunsetting
  - DR services

- **Server hosting**
  - Collocation
  - Managed Services
NWRDC Services

- Networking
  - Tallahassee Fiber Loop (14.7 miles of dark fiber)

- Licensing
  - Provide site licensing and contract management for constituent groups
NWRDC Services

- Storage as a Service
  - Capacity based
  - IOPS based
- Infrastructure as a Service
- BaaS (Backup as a Service)
- SECaaS (Security as a Service)
Questions?

Tim Brown
Northwest Regional Data Center
Tim_Brown@nwrdc.fsu.edu