

Cloud-Based IIS Hosting Solutions: Perks, Perils and Pitfalls

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ALERT IIS Background

“Traditional” hosting model

- Own physical servers
- Hosted and supported offsite by vendor
- Existing servers purchased in 2011
- Reaching end of life
- Asked vendor for options to replace:
 - New physical servers
 - “Cloud” option



What is cloud computing?

NIST Definition (2011):

- Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction.

Key Concepts:

- Still physical hardware somewhere
- Resource pooling
- Rapid elasticity
- Promotes availability
- Cloud computing concept still evolving

What is Oregon moving towards?

Infrastructure as a Service (IaaS)

- Virtual servers
- Separates logical resources from physical resources
- Removes management of infrastructure details
- Continuing with vendor support of IIS

Virtual servers

- Our existing server...



- Our new server appears like



Virtual servers

But actual
hardware
might
look like



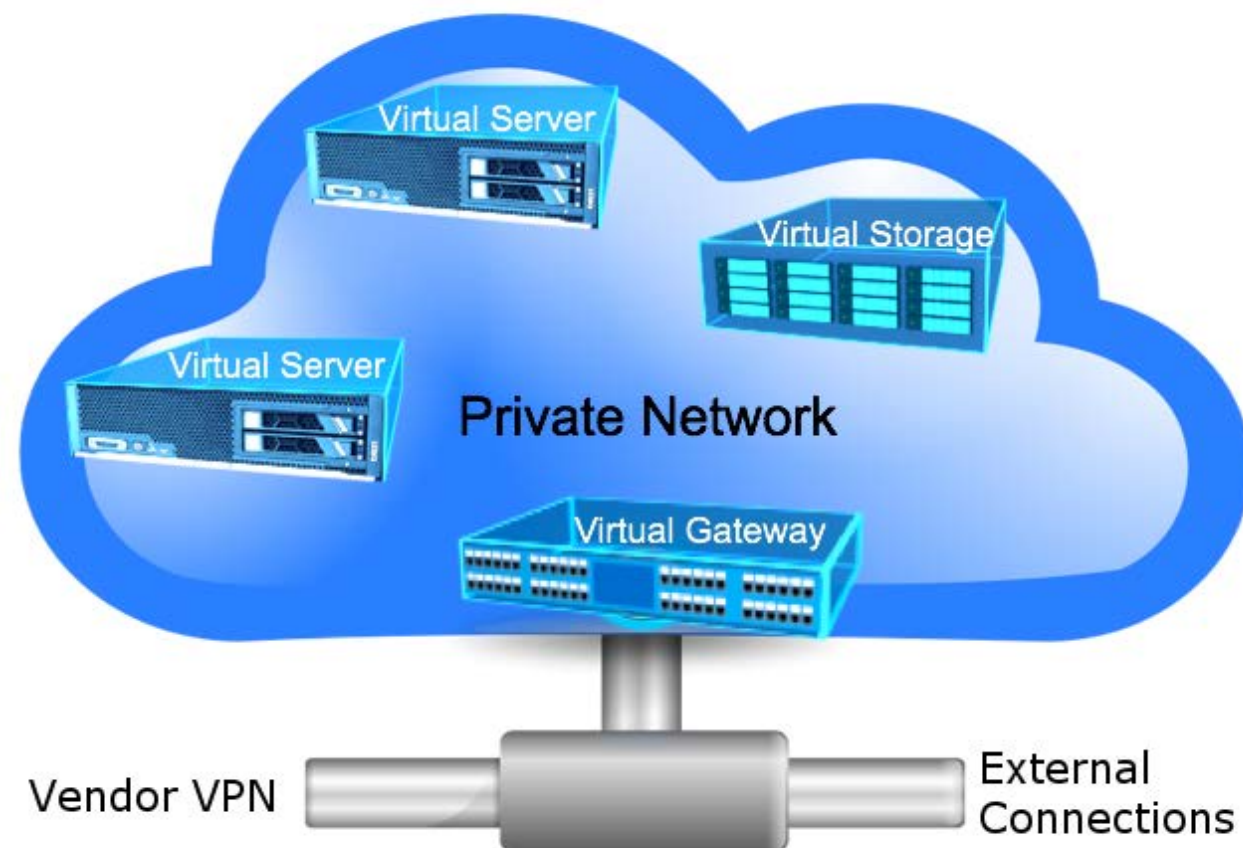
or
even



Virtual Private Cloud

Characteristics

- Operated solely for a single organization
- Different from public clouds, such as DropBox, Google Drive, etc.



Virtual Private Cloud

Benefits – Perks

- More easily expanded/contracted
- Increased fault tolerance
- More robust disaster recovery
- Lower risk of end-of-life issues
- Lower implementation costs



Virtual Private Cloud

Potential Drawbacks – Perils

- Higher ongoing hosting costs
- Don't own servers
- Control of back-end infrastructure limited to the vendor
- SLA considerations
- Security considerations



Virtual Private Cloud

Procedural Drawbacks – Pitfalls

- Cloud is a new concept – Greater project scrutiny
- Oregon cloud computing policy under development while trying to implement – rework to address changes
- Oregon changes in IT procurement policy



Cloud Policy and Readiness Assessment

General questions		Example 1	Example 2
G1	Briefly describe the function of the proposed system.	A cloud-based license-management package used to manage professional licenses for a board or commission	A cloud-based eligibility-determination system used by Oregonians, State employees, and partner organizations to apply for benefits from the State.
	<p>Does this project meet one or more risk thresholds for OSCIO oversight? Which thresholds are met?</p> <p>If "yes" approval is required from the State CIO before committing to the solution. Submit this Readiness Assessment, together with a completed Information Resource Request form and Business Case, to the Office of the State CIO.</p> <p>For complete information on thresholds, consult the IT Investment Policy. In general, oversight is required if one or more of the following apply to the proposed solution:</p> <p>G2</p> <ul style="list-style-type: none">a) it will store, process, or transmit data of Information Asset Classification Level 3 (Restricted) or higher, or information for which special protection standards apply. (Examples include: HIPAA, CJIS, or FTI).b) it will be the system of record for information that is subject to data retention and destruction rules;c) it will publish or be the authoritative source for information for which the potential cost of remediating data loss, corruption, or leakage exceeds \$150,000;d) anticipated five-year implementation and operating costs exceed \$150,000.	<p>No. License information is public; payment information is not held in the system. The cloud system supports transactions, but official records are kept in existing internal systems & backed up with paper files as each transaction is completed.</p>	<p>Yes: Thresholds a, b, c, and d are all met.</p>
Confidentiality <i>Purpose: Limit access to those authorized, avoid data leaks or breaches.</i>			
C1	What is the most restrictive information asset class of data that will be stored, processed, or transmitted by the cloud system? <i>Consult DAS Policy 107-004-050 "Information Asset Classification".</i>	Level 2	Level 3
C2	List all statutory, policy, and regulatory obligations and standards related to protecting the data in question, including at minimum the Statewide Information Security Standards.	Statewide Standards	Statewide Standards, HIPAA, FTI (1075)
C3	Are there any requirements to restrict the jurisdictions in which this data may be stored or processed?	No	Yes.
C4	Have terms been included in the Cloud Services Contract to ensure appropriate treatment of the data?	Yes	Yes
Business Continuity, Data Integrity, and Exit Strategy <i>Purpose: Manage the risks of uncontrolled changes or loss of access to the service or data.</i>			
BC1	What are the most significant business processes supported by this system?	License renewal process.	Application process; Eligibility determination process.

Security considerations

Cloud Policy and Readiness Assessment:

- Confidentiality
- Business Continuity, Data Integrity, and Exit Strategy
- Service Management
- Incident Management
- Intellectual Property and Licensing
- Data Ownership and Rights
- Public Records Management
- Audits and Controls
- Change Management
- Risk Management and Insurance

Oregon VPC Summary

Perks:

- Avoid repeated end-of-life hardware issues
- More easily expand as needed
- Lower up front costs
- Overall costs comparable on 5-year time frame, when considering hardware replacement in “traditional” model

Perceived Perils:

- Security considerations need to be addressed, but manageable
- Cloud workbook added more rigor to decision – converted peril into perk

Procedural Pitfalls:

- Greater project scrutiny
- Changing IT procurement environment has been challenging

Resources

State of Oregon IT Policies:

<https://www.oregon.gov/das/Pages/policies.aspx#IT>

Oregon Cloud Computing Policy:

<http://www.oregon.gov/das/Policies/107-004-150.pdf>

Cloud Planning and Readiness Assessment:

[http://www.oregon.gov/das/OSCIO/Documents/Cloud%20Policy %20Planning%20and%20Readiness%20Assessment.xlsx](http://www.oregon.gov/das/OSCIO/Documents/Cloud%20Policy%20Planning%20and%20Readiness%20Assessment.xlsx)

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