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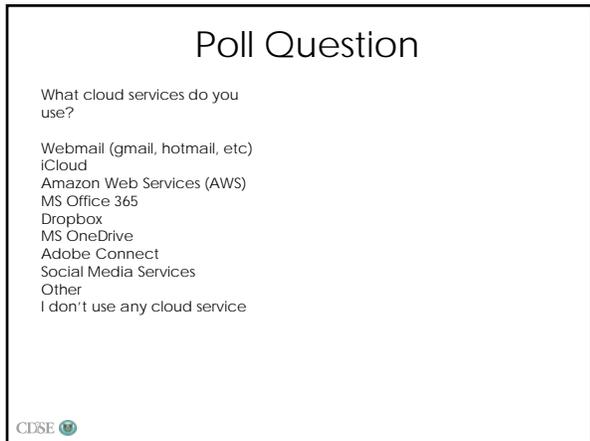
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### Examples



amazon  
iCloud  
Adobe  
Office in the Cloud  
at&t  
verizon

CDSE

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### Cloud Computing Characteristics



VIDEO ON DEMAND  
time for execution  
CDSE

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### Types of Cloud Services

SAAS	PAAS	IAAS
Software as a Service	Platform as a Service	Infrastructure as a Service
For End Users	For Developers	For SysAdmins
Examples: Google Docs Gmail GoToMeeting Cisco WebEx SalesForce MS Office 365 Adobe Connect	Examples: App Engine Apprenda Azure Heroku	Examples: AWS Metapod GCE

CDSE

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### Public Cloud Provider



CDSE

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### Private Cloud Provider



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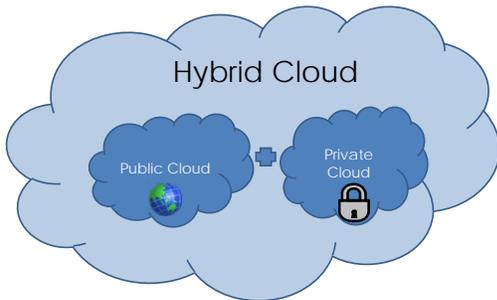
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### Hybrid Cloud Provider



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## Community Cloud Provider



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## Cloud Computing

Pros	Cons
Cost	Security / Privacy
Time	Bandwidth
Access	Reliability
Scalable	Ongoing costs
Updates	Limited control
Disaster recovery	

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## DoD Considerations

### DoD RMF

- Implemented by DoD 8510.01
- Consistent with NIST SP 800-37

### FedRAMP (fedramp.gov)

- Standardized approach for cloud acquisitions
- Uses NIST SP 800-53 security controls
- OMB Policy memo requires federal agencies to use approved service providers and share ATOs
- Mandatory for federal agencies and service models at the low and moderate risk impact level
- Private cloud deployments for single organizations and only within federal facilities are the only exception

### FedRAMP+

- Adds specific security controls for defense systems

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## Security Requirements

**Department of Defense Cloud Computing Security Requirements Guide v1r2 March 18, 2016**

- FedRAMP baseline security controls must be applied
- Tailored security controls are developed in accordance with FedRAMP+
- Additional security controls may apply
  - CNSSI 1253 Privacy Overlay
  - PII / PHI Overlay

"FedRAMP will serve as the minimum security baseline for all DoD cloud services."

\* Components may host Unclassified DoD information that has been publicly released on FedRAMP approved cloud services\*

- Updated Guidance on the Acquisition and Use of Commercial Cloud Computing Services (15 December 2014)

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**QUESTIONS / COMMENTS:**

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