Risk Assessment of Cloud Service Offerings

Gordon Bass
Chief, DISA Assessment and Certification Branch (RE52)
22 April 2016
"The information provided in this briefing is for general information purposes only. It does not constitute a commitment on behalf of the United States Government to provide any of the capabilities, systems or equipment presented and in no way obligates the United States Government to enter into any future agreements with regard to the same. The information presented may not be disseminated without the express consent of the United States Government. This brief may also contain references to United States Government future plans and projected system capabilities. Mention of these plans or capabilities in no way guarantees that the U.S. Government will follow these plans or that any of the associated system capabilities will be available or releasable to foreign governments."
Table of Contents

1 Introduction
2 Background
3 Information Security Objectives / Impact Levels
4 Risk Assessment of Cloud Service Offerings
5 Security Requirements
6 Cyber Defense and Incident Response
Level 1: Unclassified Information Approved for Public Release

Level 2: Non-Controlled Unclassified Information

Level 3: Controlled Unclassified Information

Level 4: Controlled Unclassified Information
   Export Control, PI, PHI, FOUO and others

Level 5: Controlled Unclassified Information
   CUI Requiring Higher Protection, i.e. NSSs

Level 6: Classified Information up to SECRET
### Definitions:

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSP</td>
<td>Cloud Service Provider (vendor)</td>
</tr>
<tr>
<td>CSO</td>
<td>Cloud Service Offering (provided by the CSP)</td>
</tr>
<tr>
<td>FedRAMP</td>
<td>Federal Risk and Authorization Management Program (authorizes CSOs)</td>
</tr>
<tr>
<td>PA</td>
<td>Provisional Authorization (sometimes abbreviated as P-ATO)</td>
</tr>
<tr>
<td>JAB</td>
<td>FedRAMP Joint Authorization Board (3 members: CIOs of GSA, DHS and DoD)</td>
</tr>
<tr>
<td>3PAO</td>
<td>3rd Party Assessment Organization (independent assessor certified by A2LA.org)</td>
</tr>
<tr>
<td>SSP</td>
<td>CSP’s System Security Plan for the CSO</td>
</tr>
<tr>
<td>SAP</td>
<td>3PAO’s Security Assessment Plan (including pen-test) for the CSO</td>
</tr>
<tr>
<td>SAR</td>
<td>3PAO’s Security Assessment Report of the CSO</td>
</tr>
<tr>
<td>DoD PA</td>
<td>DoD Provisional Authorization (granted by DISA AO to the CSP for the CSO)</td>
</tr>
<tr>
<td>MO</td>
<td>DoD Mission Owner</td>
</tr>
<tr>
<td>AO</td>
<td>Authorizing Official (issues IATT/ATO to MO for the mission system using the CSO)</td>
</tr>
</tbody>
</table>
FedRAMP Provisional Authorization (PA)
- Issued by the Joint Authorization Board (JAB) to a Cloud Service Provider (CSP) for their Cloud Service Offering (CSO)

DoD PA – Will typically reuse (inherit) a CSP’s JAB PA (or Federal Agency ATO)
- Issued by the DISA Authorizing Official (AO) to a CSP for their CSO, based on additional DoD security requirements (Levels 4/5/6)

DoD Authorization to Operate (ATO) – Will leverage a CSP’s DoD PA
- Issued by a DoD Component AO to a Mission Owner (MO) for their system that makes use of the CSP’s CSO
Mission Owner (MO) Authorizing Official (AO) Tasks:

- Identify CSOs with DoD Provisional Authorizations (PAs) that meet mission system data security requirements

- Select the best CSO after comparing risk profiles and other capabilities and characteristics
Mission Owner (MO) Authorizing Official (AO) Tasks:

- **Inherit/Leverage – Maximize use of existing body of evidence**
  - Scope of testing adequate? – review 3rd Party’s Assessment Organization (3PAO’s) Security Assessment Plan (SAP)
  - Test results – review 3PAO’s Security Assessment Report (SAR)
  - Residual risk, POA&Ms, continuous monitoring data – review DISA’s Certification Recommendation and Provisional Authorization memos
  - Identify and proceed with any additional testing required (with CSP and 3PAO)

- **If risk is acceptable – Issue an IATT/ATO**
  - Accept risk and liabilities identified in the DoD PA, for the MO’s unique system and mission
  - Impose any conditions deemed necessary for the secure operation of the CSO, in the context of the MO system requirements, interconnections and data processed
CSP and Mission Owner Cyber Responsibility

Cyber Responsibility

IaaS
- CSP
- DoD Mission Owner

PaaS
- CSP
- DoD Mission Owner

SaaS
- CSP
- DoD Mission Owner
Mission Owner AO Risk Decision

Authorized by:
- FedRAMP JAB
- DISA AO

Authorized by:
- Mission Owner AO

Cyber Responsibility

IaaS
- CSP
- DoD Mission Owner

PaaS
- CSP
- DoD Mission Owner

SaaS
- CSP
- DoD Mission Owner

JAB PA
- +

DoD PA

Reuse: Maximize use of existing bodies of evidence (e.g., scope, testing, results, residual risk)
Is it really a cloud, or is it an IT service?

- The NIST Definition of Cloud Computing (NIST 800-145)
- Who is the CSP and who is the customer?

**CSP:**
- Preparation – Create SSP, engage 3PAO to test (SAP) and report (SAR)

**DISA/DoD Cloud Team:**
- Accept CSP’s assessment package (if complete and ready)
- Validate package (seeking clarification where needed)
- Draft Certification Recommendation
- Brief the Defense Security Accreditation Working Group (DSAWG)
DISA AO:
- Issue DoD PA
  - Risk acceptance
  - Identify conditions
  - Memo to CSP
- List in the DISA catalog of DoD PAs

Mission Owner AO:
- Use DoD PA as input to AO decision
- Identify additional requirements and tests if needed
- Issue IATT/ATO – Risk acceptance, identify conditions, memo to Mission Owner (System Owner)
DoD Compliant CSOs:

- Cloud service offerings with security packages that received a DoD PA
  [https://disa.deps.mil/ext/CloudServicesSupport/Pages/Catalog-DoD-Approved-Commercial.aspx](https://disa.deps.mil/ext/CloudServicesSupport/Pages/Catalog-DoD-Approved-Commercial.aspx)

DoD In-Process CSOs:

- Cloud service offerings actively working with the DoD through the DoD Security Assessment Framework to get a DoD PA
  [https://disa.deps.mil/ext/CloudServicesSupport/Pages/Catalog-DoD-Assessment-In-Process.aspx](https://disa.deps.mil/ext/CloudServicesSupport/Pages/Catalog-DoD-Assessment-In-Process.aspx)