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Comparing Software Acquisition Models Against Each Other: The "Build" vs. "Buy" vs. "Rent" Trade Study

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What is the problem?

- Cloud Computing (CC) has expanded the ‘make vs buy’ trade study to ‘make vs buy vs rent’
- Yet there is little guidance to help SW acquirers make this trade study
  - What are the risks associated with CC?
  - How can I compare CC against the other options?

What is the solution?

- Understand the risks associated with CC
- Understand how these CC risks relate to different phases of SW acquisition
- Be able to compare riskyness of each acquisition approach against the others

Definitions

- Cloud Computing (CC) - computing/SW products or services for 'rent' from some vendor
  - SaaS (Software as a Service): renting the use of a s/w application (e.g. accounting)
  - PaaS (Platform as a Service): renting the use of s/w tools to build your own s/w
  - IaaS (Infrastructure as a Service): use of physical computing products/services to support an org (e.g. IT services, data servers, etc)

Risks associated with CC

- Access to resources – does the vendor provide ‘guaranteed’ access or alternative access?
- Resource updates – how does the CC vendor manage updates to their products/services?
- Info Security – how does the CC vendor plan to protect your information?
- Vendor viability – what if the vendor goes out of business? What are your options?
- There are more in the paper and more that may not yet be identified or encountered.

how these CC risks relate to different phases of SW acquisition

- SW acquisition phases:
  - Prior to acquiring a SW product/service
  - After acquiring SW product/service but before operations (e.g. development, test, integration, etc)
  - After SW product/service is put into operations
- See 'IEEE P1062 Recommended Practice for Software Acquisition' for more details
- This list is 'under construction' and not part of this paper

Compare riskiness of each acquisition approach against the others (1)

- SaaS vs COTS (aka ‘rent access to vs buy’ a commercial SW product):
  - possession of product vs access to product
  - Internal staff/skill needs
  - Update/version control options
  - Information protection
  - Managing SW product/service defects

Compare riskiness of each acquisition approach against the others (2)

- PaaS vs Custom Built SW (aka ‘rent access to SW dev environment vs internal SW dev environment’):
  - possession of product vs access to product
  - Capacity of users to access tools
  - Update/version control options
  - Information protection
  - Tool defects management

Next Steps

- Improve list of CC risk areas, map to phases
- Develop/improve risk mitigations for these CC risks
- Improve comparisons between ‘make vs buy vs rent’ acquisition models
  - Incorporate into IEEE 1062 Std?
- Government role in addressing these issues (e.g. NIST, etc)