

ABC: Adaptive Brokerage for the Cloud

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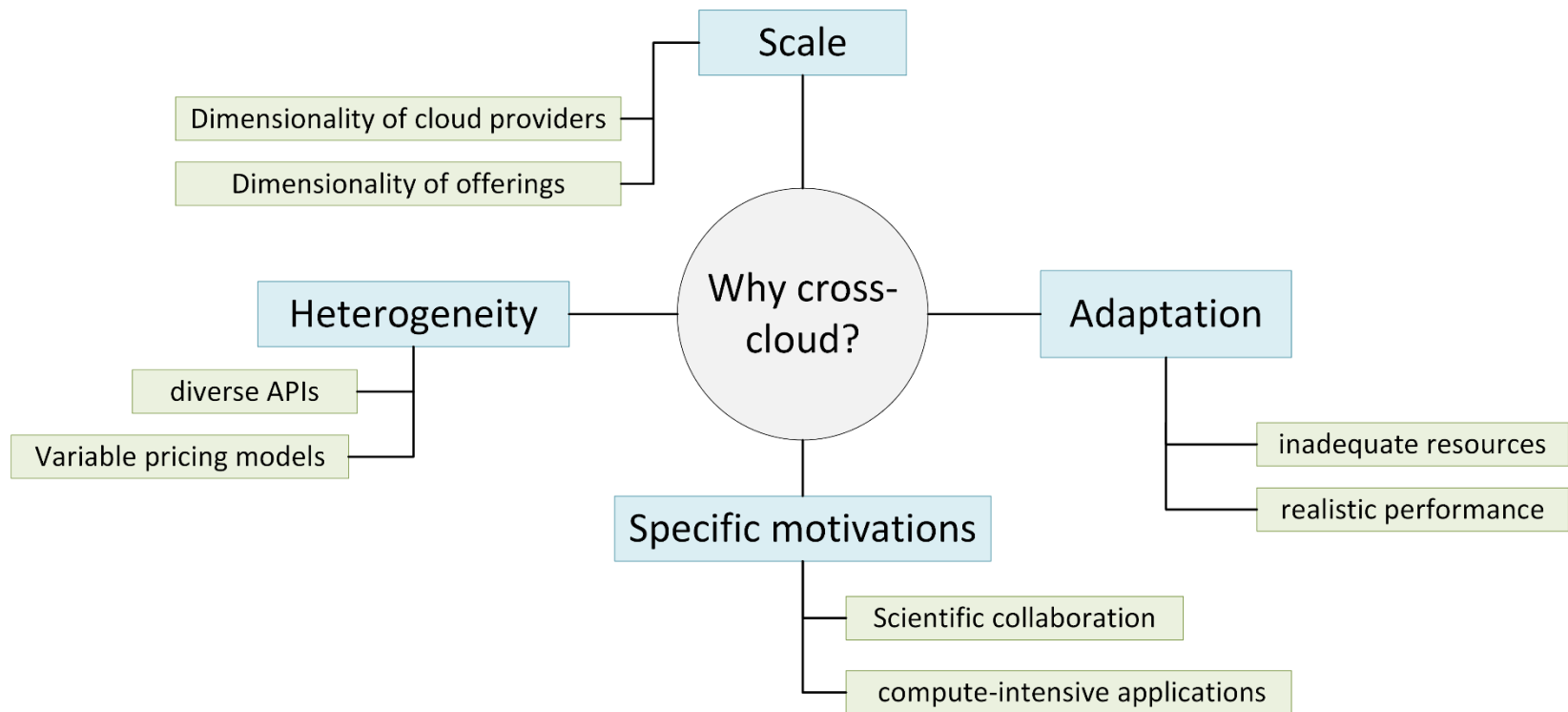
26/03/2018



Background

- Cloud computing (CC) has become the de facto means of deploying large scale systems in a robust and cost effective manner.
- Is CC still under utilised? Why?
 - Complex decisions (cost:performance)?!
- Cross-cloud

Motivation for cross-cloud



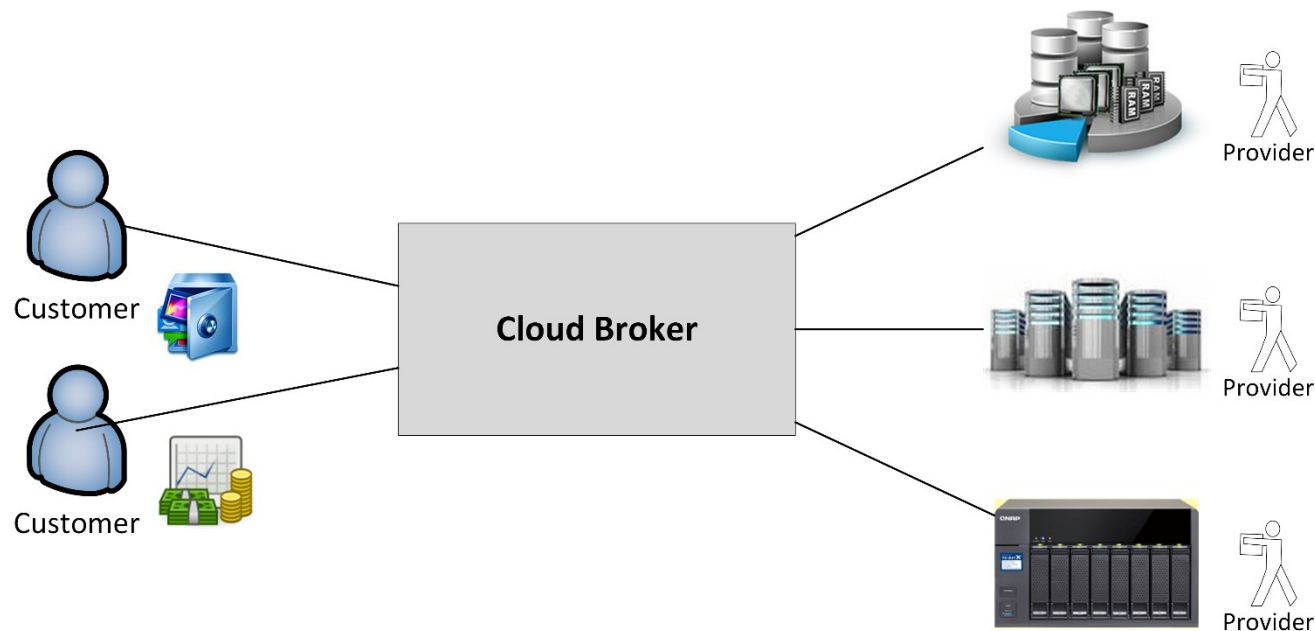
Cross-cloud models

	Hybrid cloud	Multi-cloud	Meta-cloud (Brokers)	Federated clouds
Provisioning Means	Bespoke logic	Common programming model or a translation library	Delegating infrastructure instrumentation	Common API
Abstraction	None	Some	High	Very high
Realistic	Y	Y	Y	?
Examples	(domain specific)	Libcloud, jClouds, Fog, mOSAIC	OPTIMIS	CIMI, OCCI, TOSCA, CDMI, SuperCloud

Adapted from: Y. Elkhatab. Mapping Cross-Cloud Systems: Challenges and Opportunities. In HotCloud, 2016.

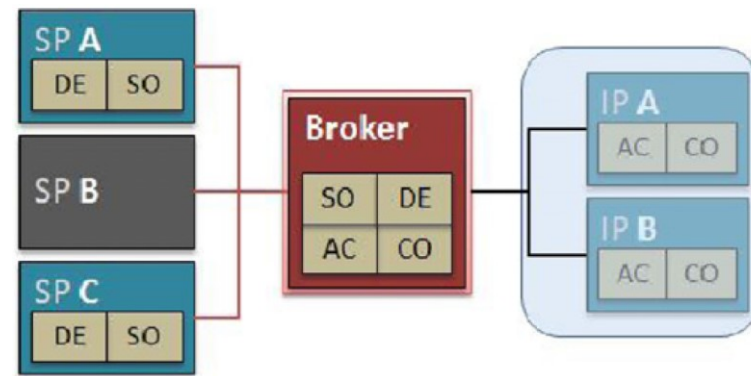
Cloud Broker

- “a third-party individual or business that acts as an intermediary between the purchaser of a cloud computing service and the sellers of that service.”



Cloud Brokers: examples

- OPTIMIS:



- Benefits for customers: simplicity and potential cost reductions.
- Benefits for providers: Simpler management and increased revenue

Cloud Brokes: examples

- JamCracker
 - a platform that it aggregates and distributes on-demand services through a global ecosystem.

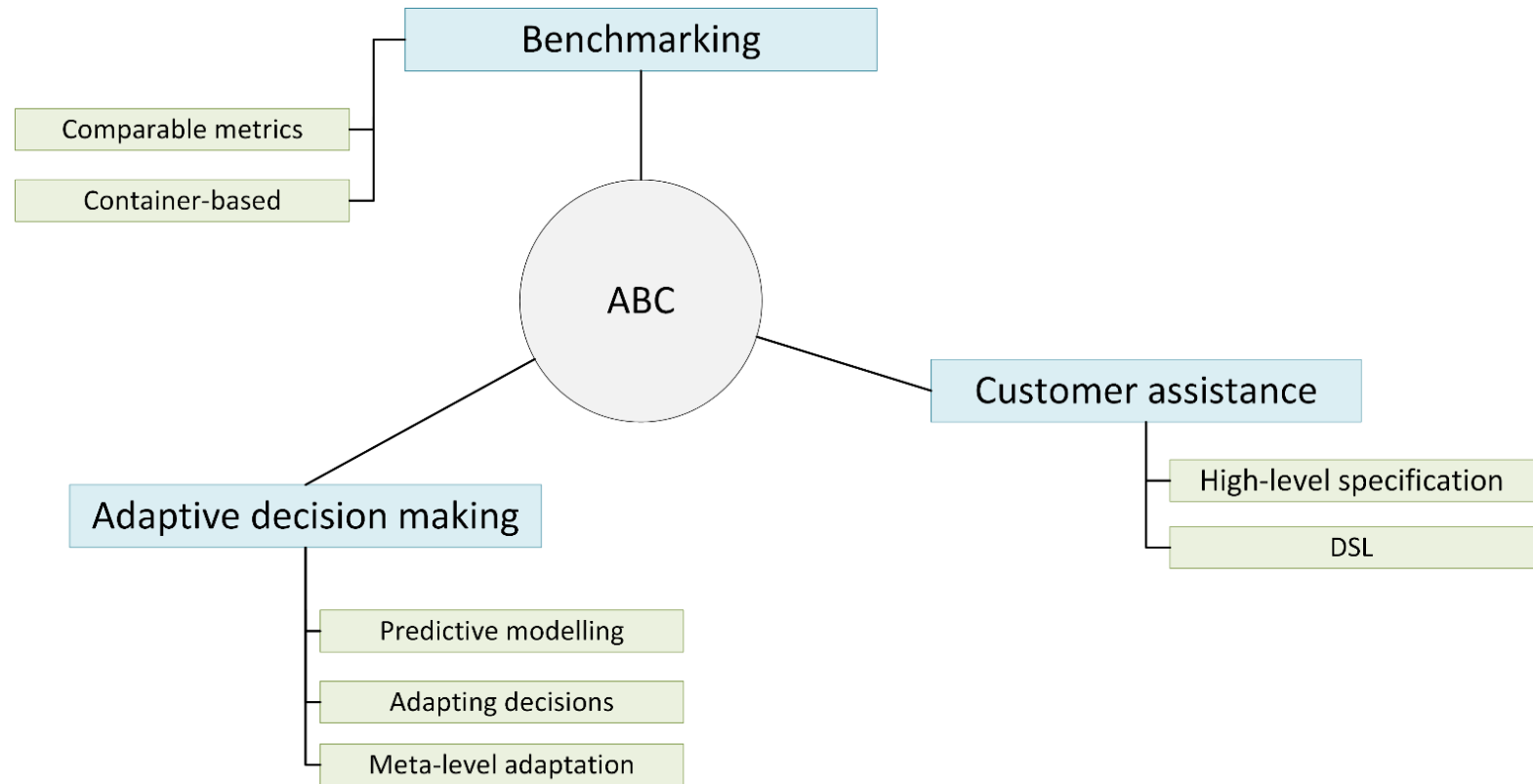


- Dell Cloud Marketplace

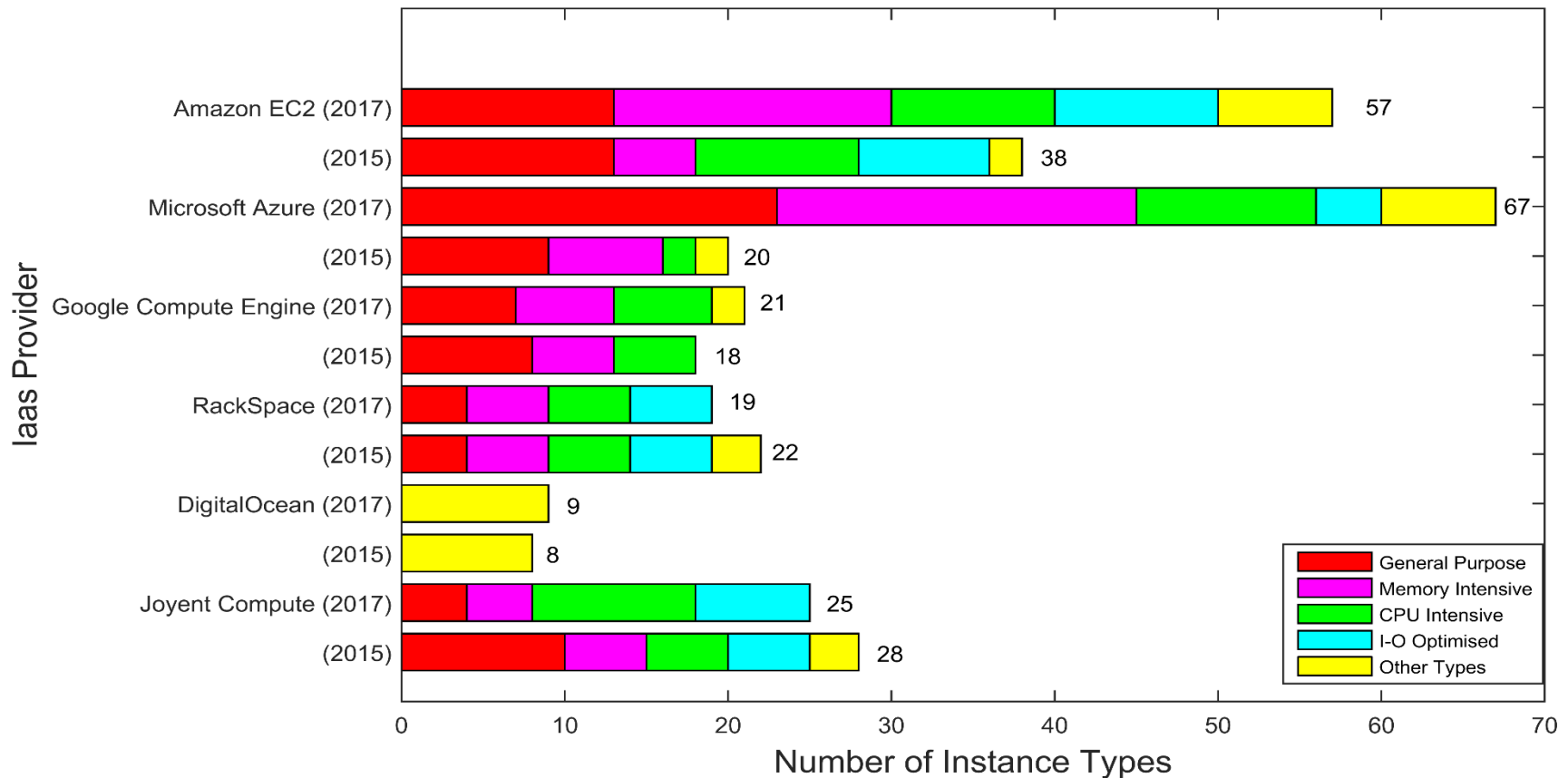
Limitations

- Lack of customers assistance for specifying requirements.
- Comparable cross-vendor metrics?!
- Migrating VMs? What about containers?
- Lack of support for intelligent decision making.

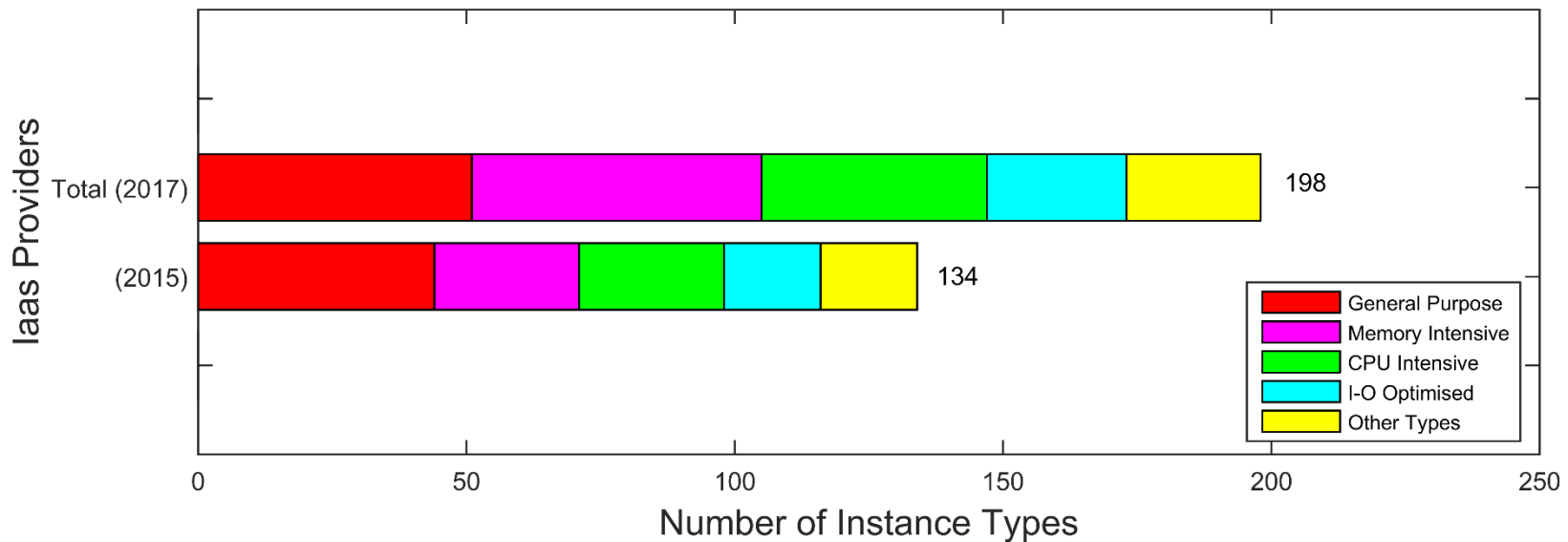
ABC Objectives



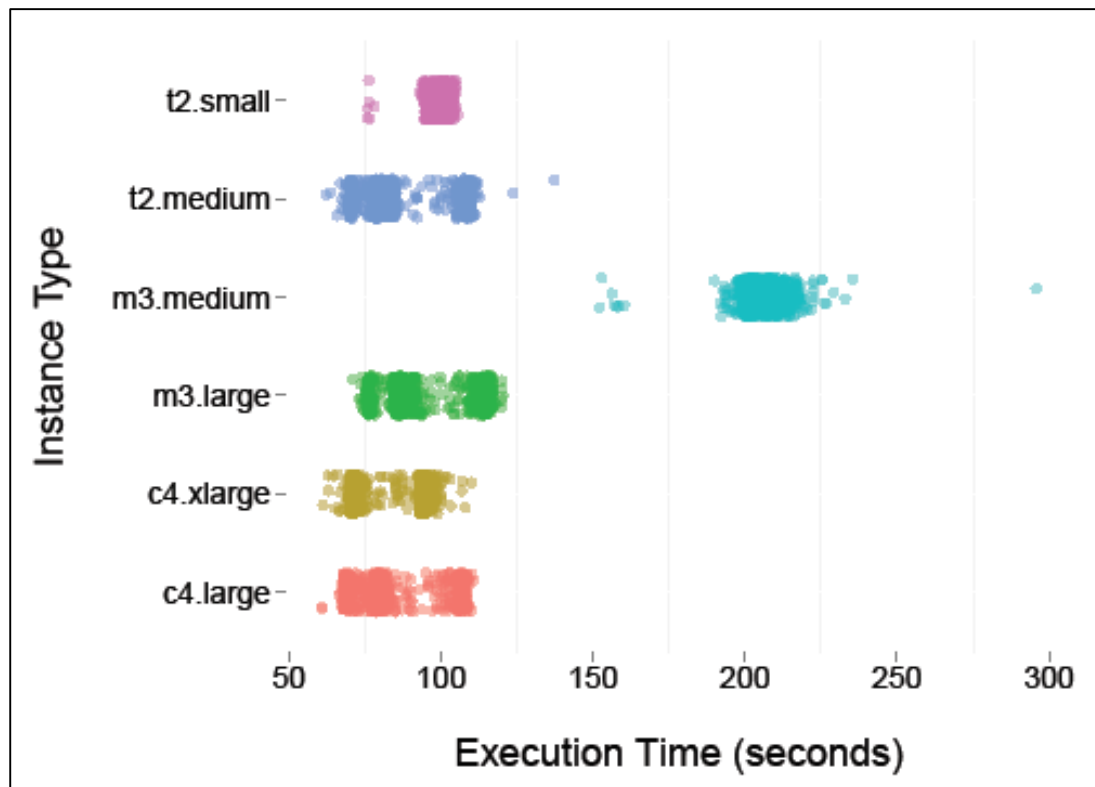
To date: Example on scale and heterogeneity



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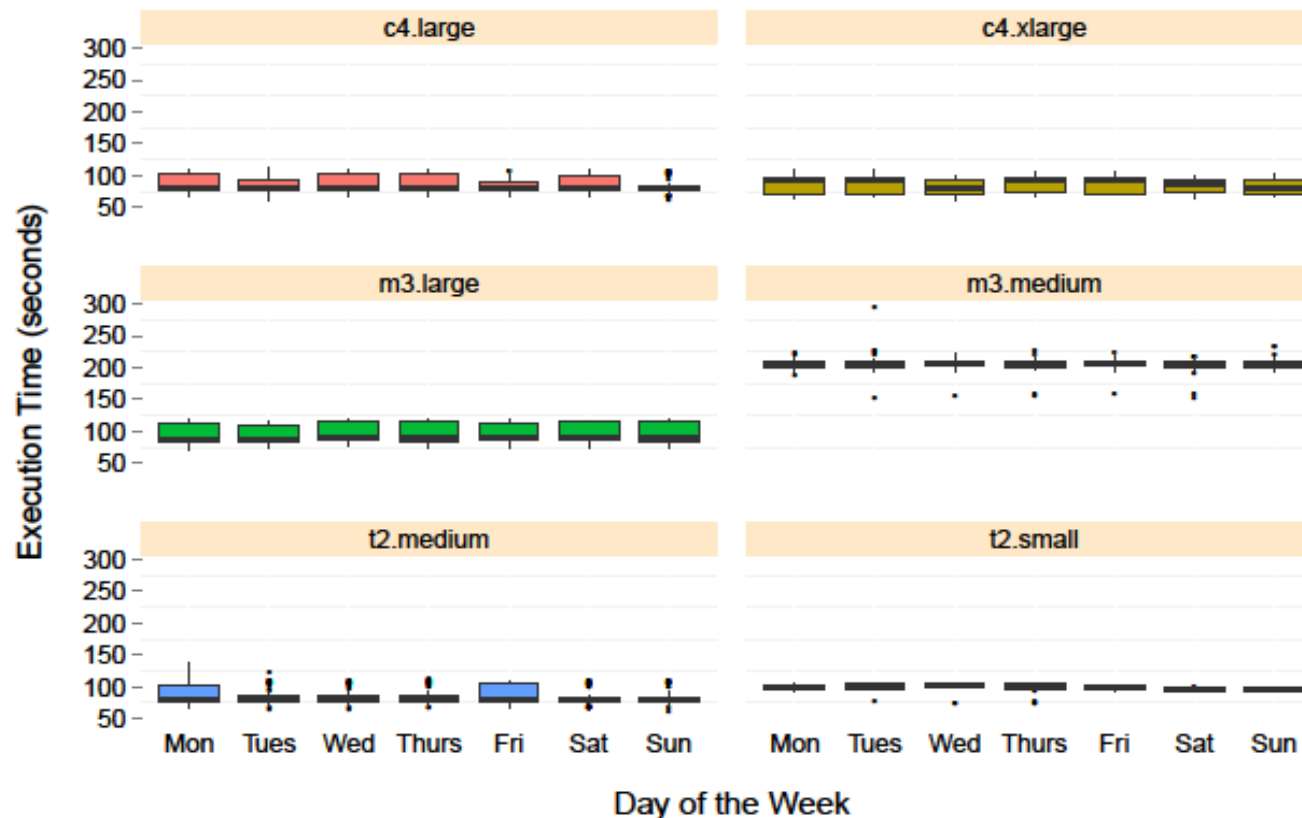


To date: Examples on Variability in cloud offerings



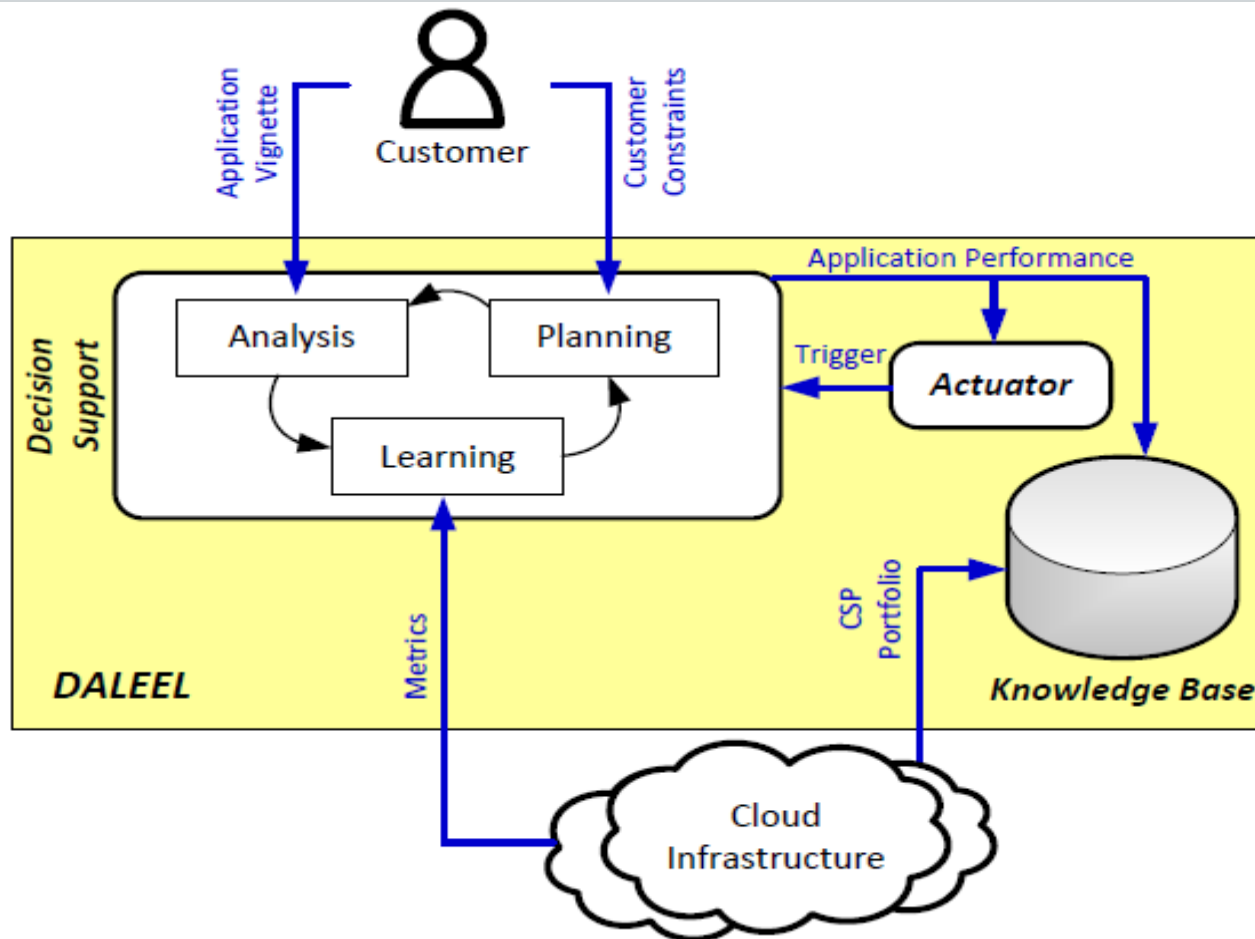
F. Samreen et al. "Daleel: Simplifying cloud instance selection using machine learning," *NOMS 2016 - 2016 IEEE/IFIP Network Operations and Management Symposium*, Istanbul, 2016, pp. 557-563.

To date: Examples on Variability in cloud offerings



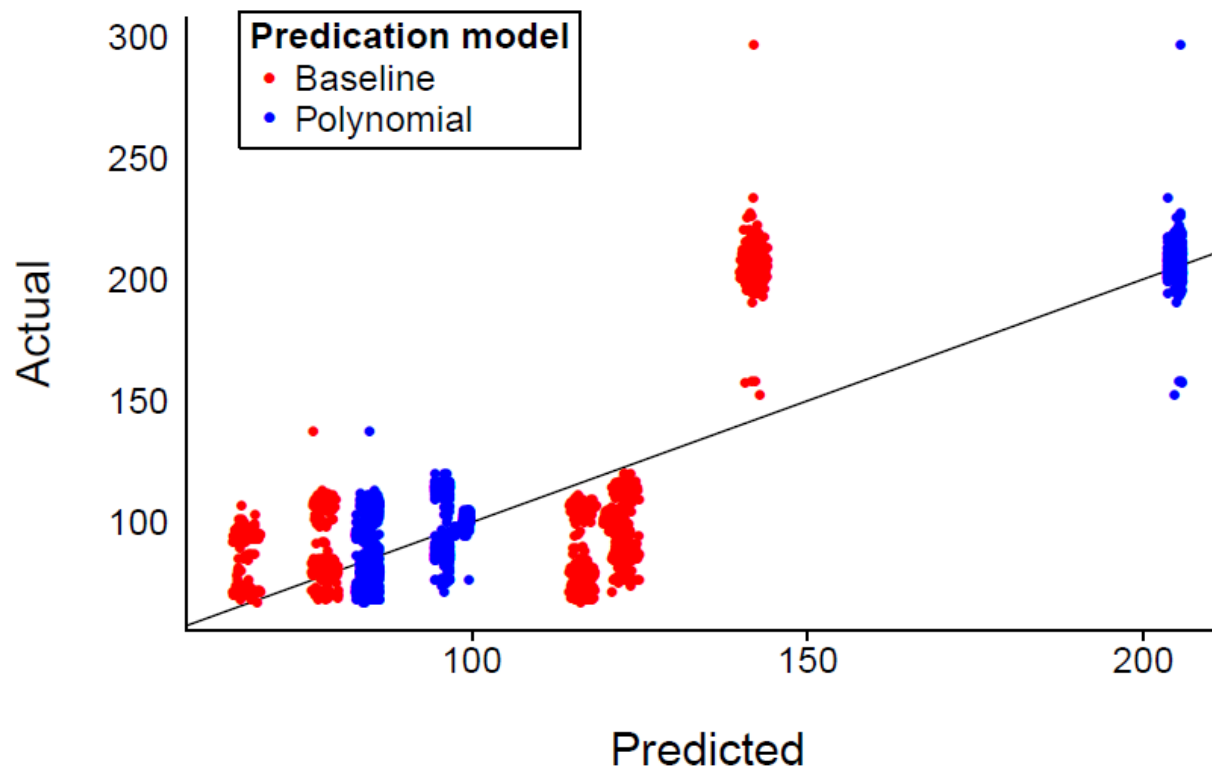
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To date: Daleel



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To date: promising results



F. Samreen et al. "Daleel: Simplifying cloud instance selection using machine learning," *NOMS 2016 - 2016 IEEE/IFIP Network Operations and Management Symposium*, Istanbul, 2016, pp. 557-563.

Summary

- The ABC project will introduce more certainty into the selection of cloud services through the introduction of a smart and continuously adaptive cloud broker.

ABC: Adaptive Brokerage for the Cloud - Questions?

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