

Continuous availability: from the shift paradigm to unmanned operation.

Pietro Tiberi

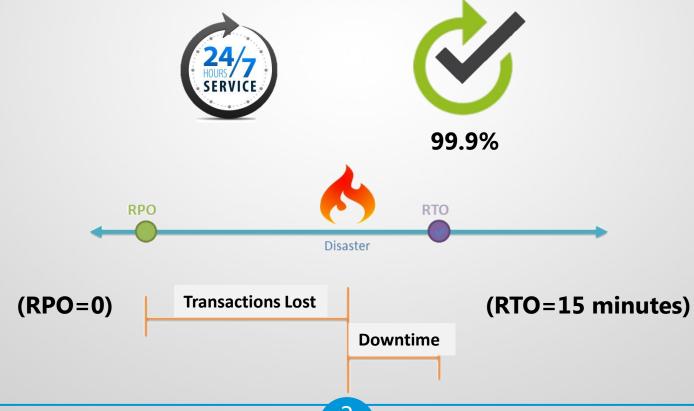
17 January 2018 – TIPS Contact Group

Agenda

Introduction Continuous Results Conclusions and Availability perspective

Introduction

TIPS Non functional requirements - Reliability / Availability



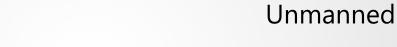
Introduction

Datacenter Operations

Human based (on shifts)













CONTINUOUS OPERATION



From high availability to continuous availability

- Redundancy
- Fault Tolerance
- Clustering
- Active Active configuration



- Proactive monitoring
- Continuous delivery
- Automatic remediation
- Dynamic capacity management

Proactive Monitoring

Application monitoring





Detect events before failures

Analyze the event

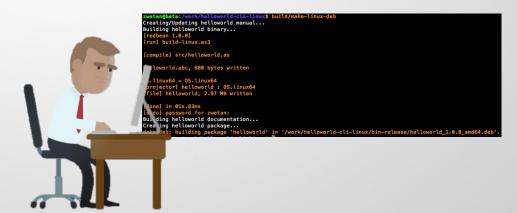
Infrastructure monitoring

Trigger automatic actions

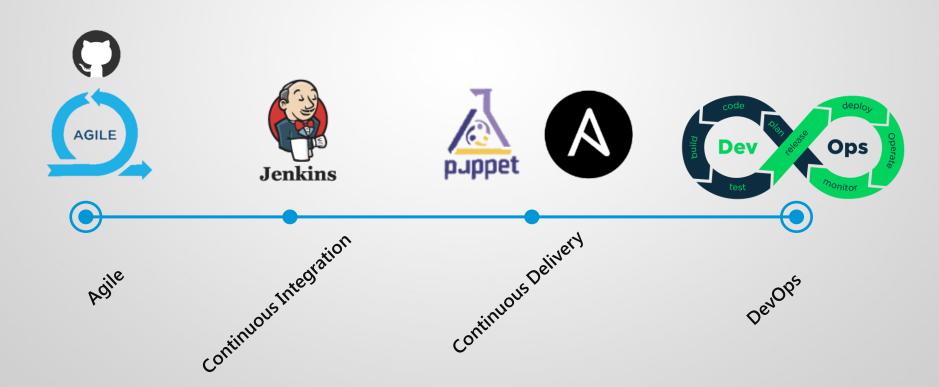
IT Automation



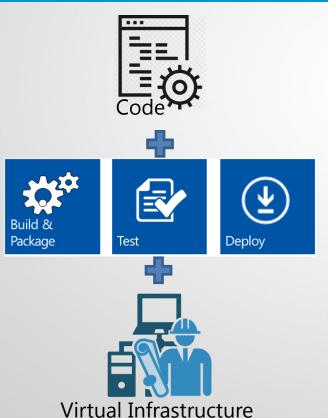




From Agile to Devops



DevOps - Everything as Code





Dynamic Capacity Management

Resource utilization rate optimization

ANALYZING MONITORING CHANGE **OPTIMIZING**

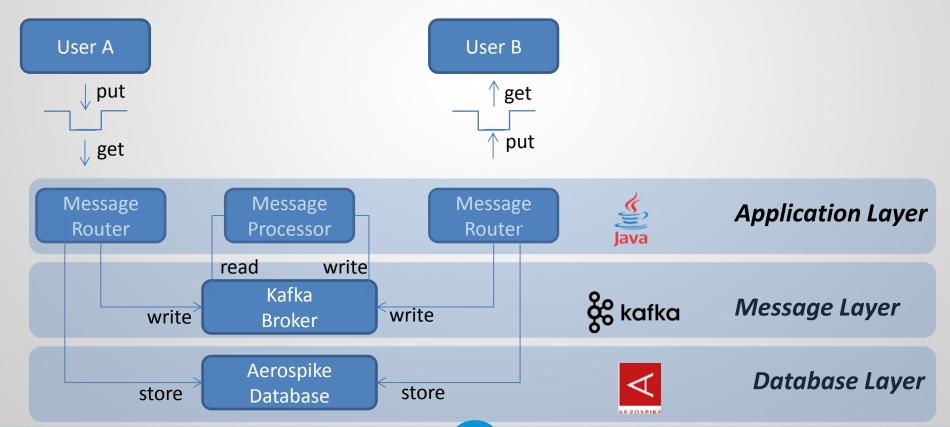
What if scenarios

Consumption trend analysis Predict future requirements and trends



Test Plant

Architecture

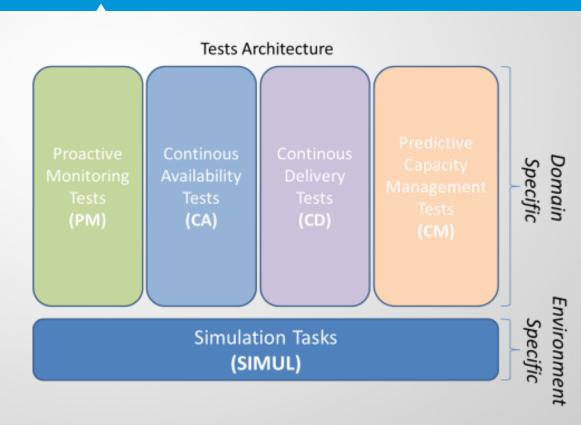


Test Architecture

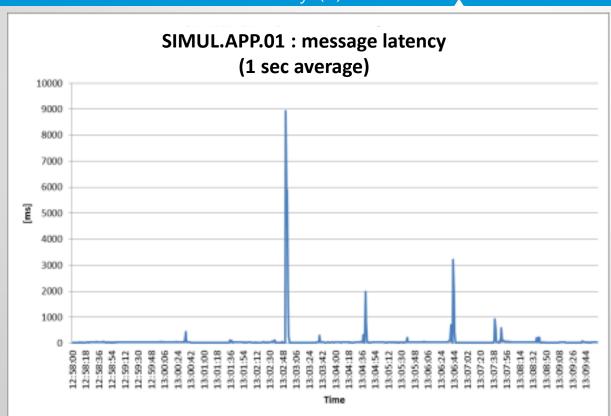
Specific tests to verify the relevant domain functions.

executed on

Common simulation layer to reproduce real operational environment.



Simulation – continous delivery (1)

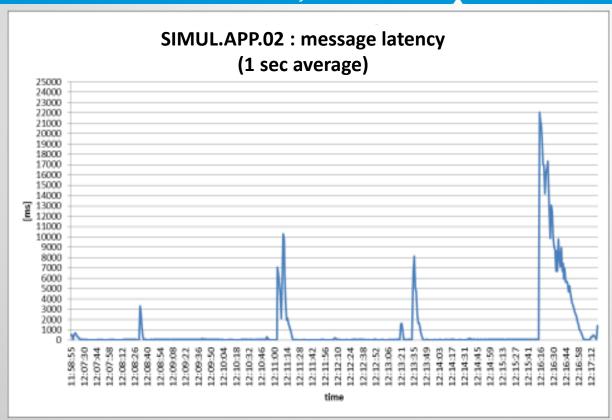


Normal traffic condition (500 msg/s), timeout = 10.000 ms

Kafka cluster rolling update

- 0 messages lost
- 0 timeout expired

Simulation – continous delivery (2)

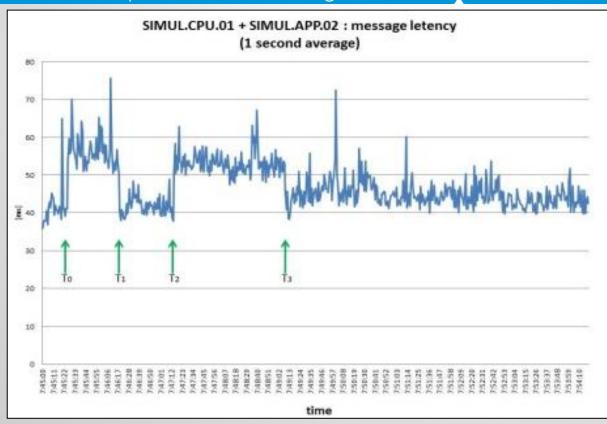


Heavy traffic condition (2000 msg/s), timeout = 10.000 ms

Kafka cluster rolling update

0 messages lostsome timeout expired

Simulation – proactive monitoring



Normal traffic condition (500 msg/s) average E2E processing time = 45 ms

High vCPU load added to Message Processor nodes.

T0-T1 → below threshold

T2-T3 → exceed threshold

Conclusions and perspective





Bi-modal Data Center







Tool



Continuous availability: from the shift paradigm to unmanned operation.

Thanks for your attention

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