Continuous availability: from the shift paradigm to unmanned operation.

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Agenda

1. Introduction
2. Continuous Availability
3. Results
4. Conclusions and perspective

Continuous availability: from the shift paradigm to unmanned operation
Introduction
TIPS Non functional requirements - Reliability / Availability

99.9%

(RPO=0) (RTO=15 minutes)

Continuous availability: from the shift paradigm to unmanned operation
Introduction
Datacenter Operations

Human based
(on shifts)

Unmanned

Continuous availability: from the shift paradigm to unmanned operation
CONTINUOUS OPERATION
Continuous Availability
From high availability to continuous availability

- Redundancy
- Fault Tolerance
- Clustering
- Active Active configuration
- Proactive monitoring
- Continuous delivery
- Automatic remediation
- Dynamic capacity management
Continuous Availability
Proactive Monitoring

- Application monitoring
- Infrastructure monitoring
- Detect events before failures
- Analyze the event
- Trigger automatic actions

Continuous availability: from the shift paradigm to unmanned operation
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Continuous Availability
From Agile to DevOps

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Continuous Availability
DevOps - Everything as Code

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Continuous Availability
Dynamic Capacity Management

- Resource utilization rate optimization
- Consumption trend analysis
- What if scenarios
- Predict future requirements and trends
Continuous availability: from the shift paradigm to unmanned operation
Continuous availability: from the shift paradigm to unmanned operation
Specific tests to verify the relevant domain functions.

executed on

Common simulation layer to reproduce real operational environment.
Results
Simulation – continuous delivery (1)

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

Kafka cluster rolling update

0 messages lost
0 timeout expired

Continuous availability: from the shift paradigm to unmanned operation
**Results**

Simulation – continuous delivery (2)

**SIMUL.APP.02 : message latency**

(1 sec average)

- **Heavy traffic** condition (2000 msg/s), timeout = 10.000 ms
- Kafka cluster rolling update
- **0 messages lost**
- **some** timeout expired
Results
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

Phased Approach

Bi-modal Data Center

CULTURE

SKILLS

Tool

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Continuous availability: from the shift paradigm to unmanned operation.

Thanks for your attention

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