openmaru APM

애플리케이션 성능과 장애 대응 데모

데모 개요

- 목적
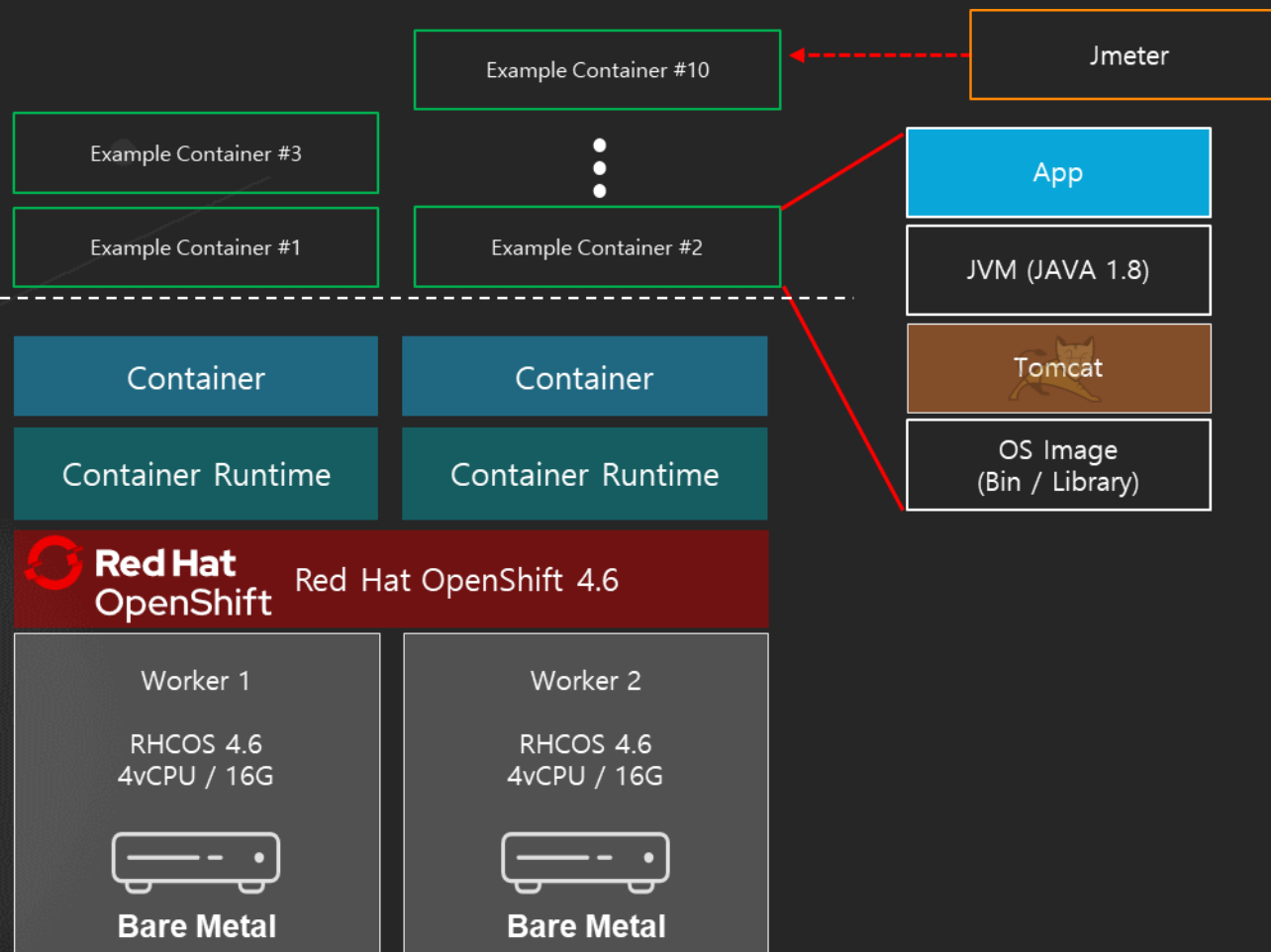 - 어플리케이션을 실시간 모니터링 데모를 통하여 장애 발생 시 원인을 정확히 파악하기 위함입니다.

- 내용
  - 장애가 시 OPENMARU APM에서 장애 발생 원인을 정확히 확인 할 수 있습니다.
  - CPU에 부하를 주는 샘플 애플리케이션을 배포한 후 JMeter 로 부하를 줘서 APM에서 헬스체크, 이벤트 목록에서 장애 내역을 확인 할 수 있습니다.

> 어플리케이션 장애 타입이 따로 있는건가요?
> 그런걸 APM 통해서 알면 어떤 대응을 할 수 있나요?
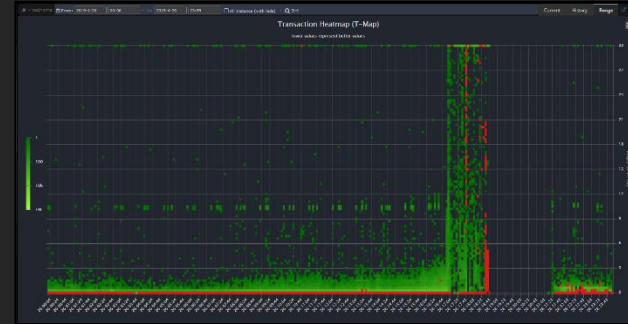
Container 환경 테스트 구성도

Example Container #10
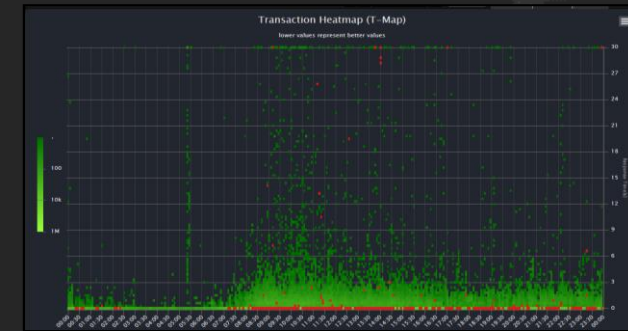
Example Container #3

Example Container #1

Example Container #2

Jmeter

App

JVM (JAVA 1.8)

Tomcat

OS Image
(Bin / Library)

Container

Container

Container Runtime

Container Runtime

Red Hat OpenShift   Red Hat OpenShift 4.6

Worker 1

RHCOS 4.6
4vCPU / 16G

Bare Metal

Worker 2

RHCOS 4.6
4vCPU / 16G

Bare Metal

PaaS 운영

애플리케이션 장애의 대표적인 패턴

openmaru
APM

애플리케이션 장애의 대표적인 패턴

Full GC

Server Hang

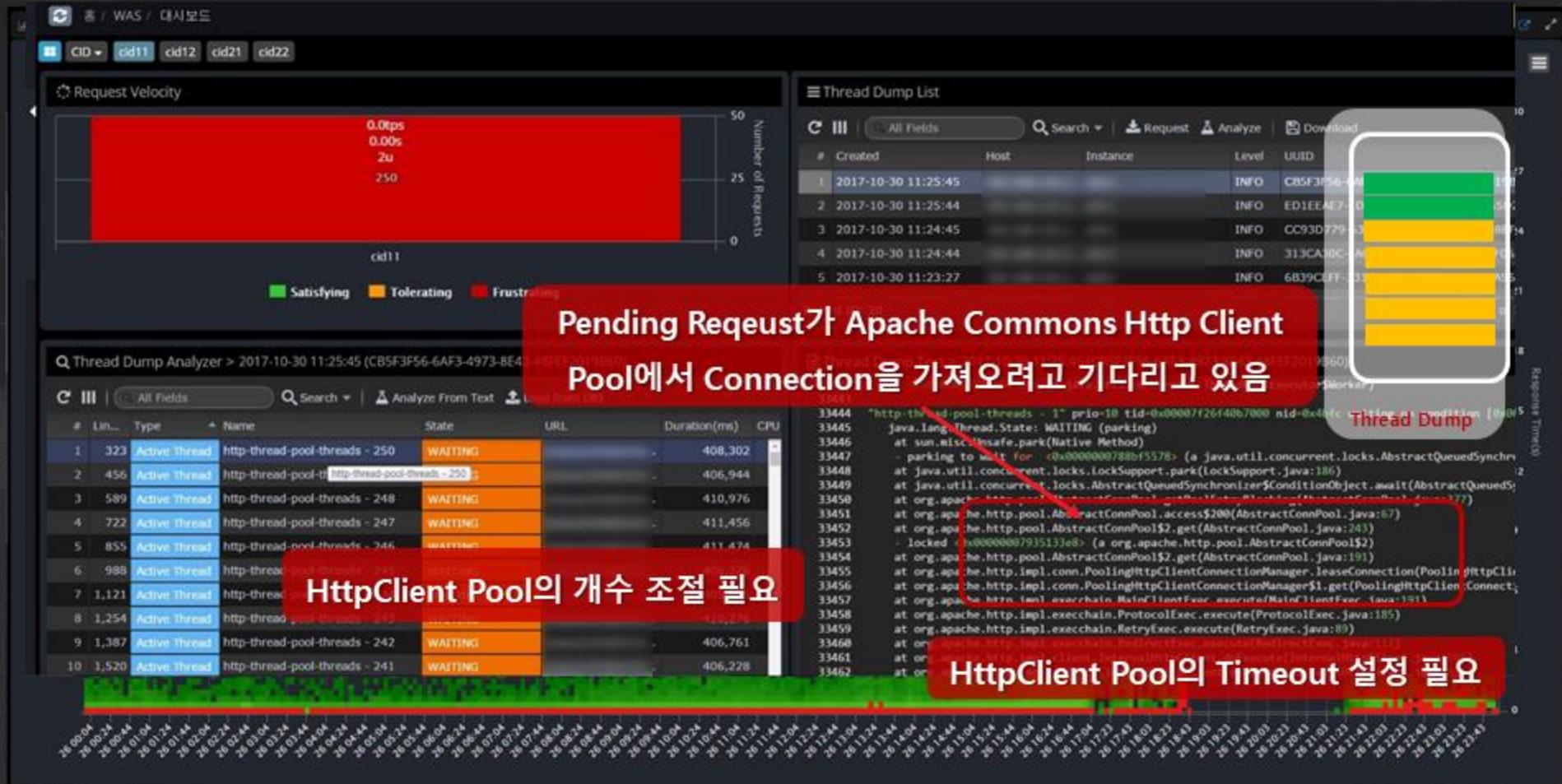Runtime Exception

Full GC

Agent Type	Server IP	Client IP	Instance ID	URL	Status	Duration(ms)	SQL Time(ms)	Fetch Gab	Fetch Count	External Time	CPU Time(ms)	Start Time
WAS				/member/auth	**500**	178,684	93	178,543	92,982	0	3,203.13	2017-12-11 18:30:47.754
WAS				/member/auth	200	146,325	9,265	0	2	0	31.25	2017-12-11 18:31:19.925
WAS				/member/auth	200	143,590	0	0	2	0	31.25	2017-12-11 18:31:22.660
WAS				/log/tracking	200	134,481	0	0	0	0	15.63	2017-12-11 18:31:31.785
WAS				/log/tracking	200	129,779	0	0	0	0	46.88	2017-12-11 18:31:36.503
WAS				/member/auth		127,184	4,093	0	1	0	46.88	2017-12-11 18:31:39.066
WAS										0	31.25	2017-12-11 18:31:41.691
WAS				/member/firstAct	200	119,107	0	0	1	0	78.13	2017-12-11 18:31:47.128

사용자 인증시 데이터베이스 Fetch를 92,982건 호출함

Page 1 of 1 | View 1 - 22 of 2

Transaction Detail Trace StackTrace

Name	Value	Name	Value
Request URL	POST /member/auth ⧉ View URL	Params	
Request Host	o.kr ⊕ View Page	Status Code	500
Client IP	♀ User Location	User Agent	Variables/2.0.7 (iPhone; iOS 10.3.2; Scale/3.00)
Start Time	2017-12-11 09:30:47.754	End Time	2017-12-11 09:33:46.438
Duration (ms)	178,684	CPU Time (ms)	3,203.13
JDBC Time (ms)	93	Latency (ms)	0
Thread Name	http-bio-80-exec-67	Thread ID	1819
IP		Instance ID	
Agent Type	WAS	Transaction ID	16044e99576-199e9ec195f9aee7866
Error Message			

Server Hang

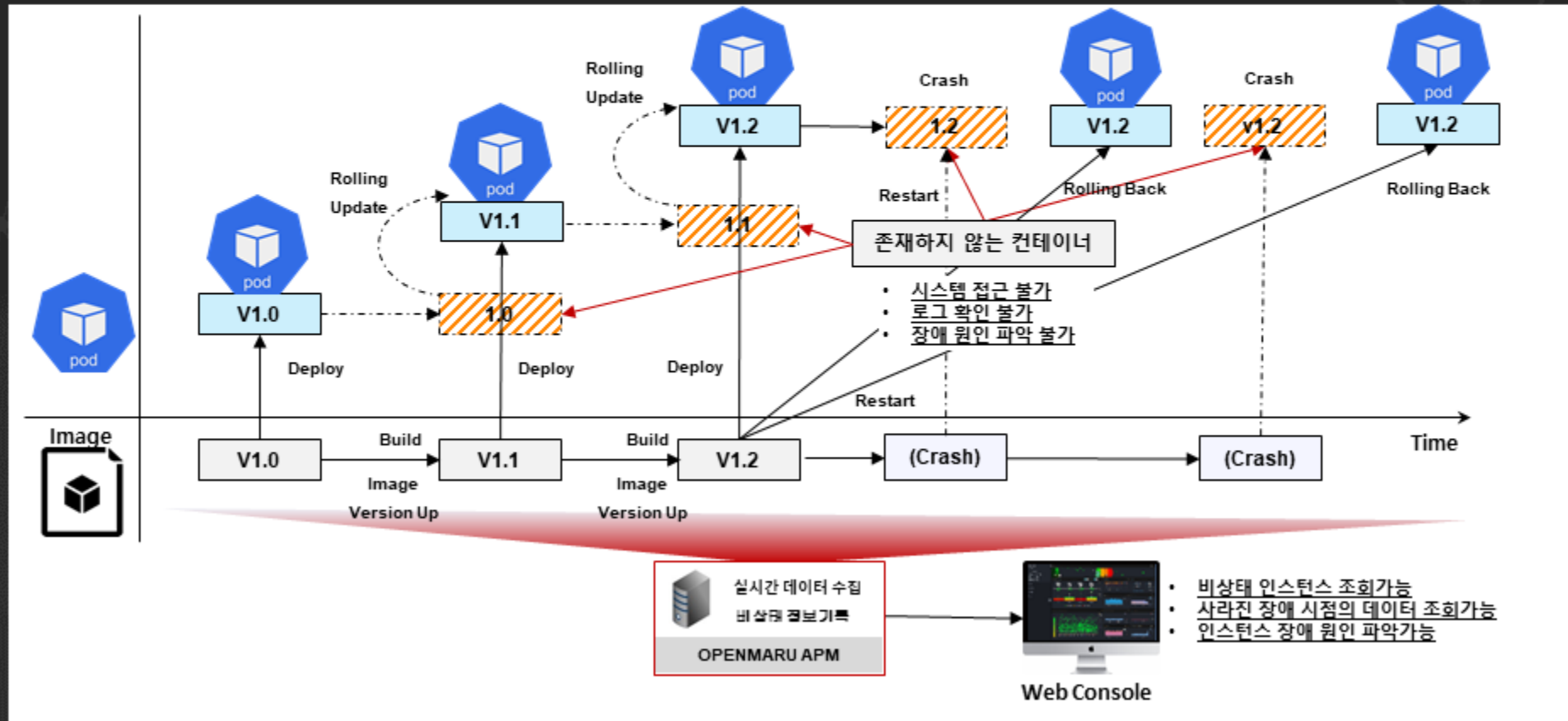# Runtime Exception

XXXTodoCntPortlet.jsp의 102번째 라인에서 오류 발생

기존환경 대비 Container 환경 모니터링의 특성

기존환경 대비 Container 환경 모니터링의 특성

- VM 환경에서는 동일한 인스턴스에 새 버전 애플리케이션을 배포
- Container 환경에서는 새로운 인스턴스에 새 버전 애플리케이션을 배포
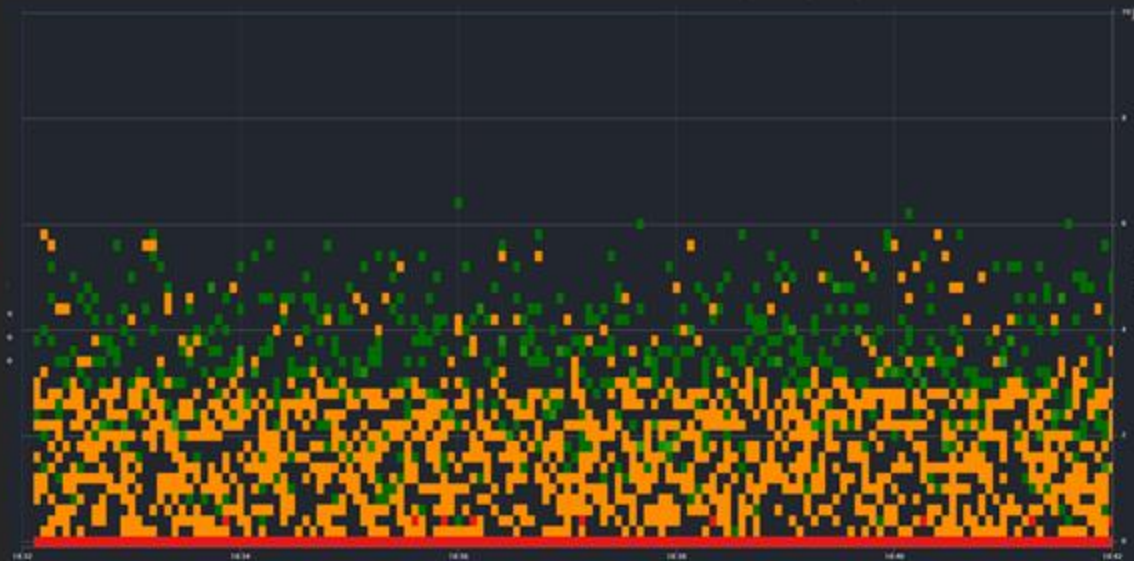 - Openshift (Kubenetes) 배포 프로세스

비상태 인스턴스 모니터링 정보 조회 절차(1/3)

#	Enable	Ena...	Host Name	IP Address	Instance ID	Type	Status	First Date
1	☐	Hide	custom-app-19-g5v9t	10.131.0.112	Container-19-g...	WAS	STOPPED	2021-01-31 16
2	☐	Hide	custom-app-20-bggjn	10.131.0.116	Container-20-b...	WAS	STOPPED	2021-01-31 16
3	☐	Hide	custom-app-21-pdvl7	10.131.0.119	Container-21-p...	WAS	STOPPED	2021-01-31 16
4	☐	Hide	custom-app-22-cmg2f	10.131.0.124	Container-22-c...	WAS	STOPPED	2021-01-31 17
5	☐	Hide	custom-app-23-nf6js	10.131.0.127	Container-23-n...	WAS	STOPPED	2021-01-31 17
6	☐	Hide	custom-app-24-c9smx	10.131.0.131	Container-24-c...	WAS	STOPPED	2021-01-31 17
7	☐	Hide	custom-app-25-w56pk	10.131.0.134	Container-25-...	WAS	STOPPED	2021-01-31 17
8	☐	Hide	custom-app-26-bwpkn	10.131.0.137	Container-26-b...	WAS	STOPPED	2021-01-31 17
9	☐	Hide	custom-app-27-fh2gh	10.131.0.139	Container-27-f...	WAS	STOPPED	2021-01-31 18
10	☑	Show	custom-app-28-tszdk	10.131.0.142	Container-28-t...	WAS	STOPPED	2021-01-31 18
11	☑	Show	custom-app-29-6mw29	10.131.0.145	Container-29-...	WAS	RUNNING	2021-01-31 18

비상태 인스턴스 모니터링 정보 조회 절차(2/3)

비상태 인스턴스 모니터링정보 활성화 전

비상태 인스턴스 모니터링정보 활성화 후

비상태 인스턴스 모니터링 정보 조회 절차(3/3)

PaaS 운영

애플리케이션 장애의 대표적인 패턴 확인

애플리케이션 장애의 대표적인 패턴

제품 / 서비스에 관한 문의

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