Université IBM i

19 et 20 novembre 2024

IBM Innovation Studio Paris

uii2024
#ibmi
#uii2024

S12 – AIOps : garantissez la performance applicative avec *Instana*

19 novembre 13:30 - 14:30

Benoit Henry
Technical Specialist - IBM France
benoit.henry@ibm.com

Benoit Marolleau
Solution Architect - Client Engineering
benoit.marolleau@fr.ibm.com

IBM

common FRANCE

Agenda

- Introduction : AIOps, APM (10 minutes)
- IBM Instana et l’agent IBM i (10 minutes)
- Démonstration (30 minutes)
- Questions/Réponses (10 minutes)

IBM Client Engineering | EMEA

Custom Demos, Architecture Workshops, MVP Prototyping…

Let's create ↷ value together

Data & AI Squad

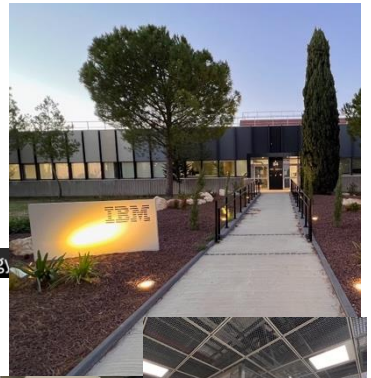
IBM Z & Modernization Squad

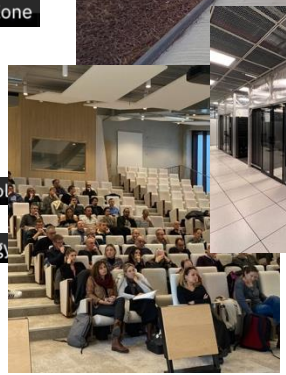
Sustainability Squad

Hybrid Cloud & AIOps Squad

Example of IBM i modernisation workshops:

- 01_API-zation / REST / Core Business Integration — IBM Technology Zone
- 02_DB2 Data Modernization: from Native to SQL
- 03_OpenShift, Merlin and DevOps — YouTube — IBM Technology Zone
- 04_Open-Source Adoption with Legacy on IBM i — YouTube — IBM Technology
- 05_Power/IBM i move to cloud: IBM Cloud PowerVS — IBM Technology Zone
- 06_IBM i Resilience: PowerHA, DB2 Mirror
- 07_Ansible Automation and AIOps — YouTube — IBM Technology Zone
- 08_Data Governance & MLOps with CP4Data — YouTube — IBM Technol
- 09_ Infuse AI in core business apps — YouTube — YouTube — IBM Technology
- **NEW**: IBM Watsonx Code Assistant for Z





IBM i / IBM Z Architects & Experts
Contact IBM i : benoit.marolleau@fr.ibm.com

IBM TechXchange / © 2024 IBM Corporation

Université IBM i

19 et 20 novembre 2024

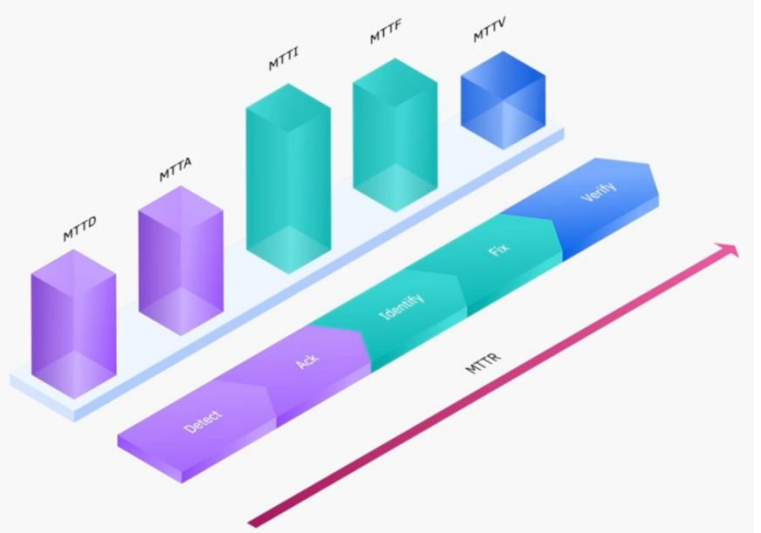
IBM i
continuous innovation
continuous integration

Introduction : AIOps, APM

Qu’est-ce que l’AIOps ?

Intelligence Artificielle pour les Opérations IT
Utilise l’**intelligence artificielle et le machine learning** pour automatiser et améliorer les opérations informatiques, mieux gérer et optimiser l’environnement IT.

- **Analyse de Données** : Collecte et analyse de grandes quantités de données IT (logs, événements, métriques) en temps réel.
- **Détection d'Anomalies** : Identifie les schémas inhabituels et les problèmes de performance de manière proactive.
- **Actions Automatisées** : Automatise les réponses aux problèmes IT courants (ex. : redémarrage de services, mise à l’échelle des ressources).



Objectifs:

- **Résolution plus rapide des problèmes** grâce à une analyse automatisée des causes profondes. (réduire le MTTR ➔)
- **Réduction des temps d'arrêt** par la maintenance prédictive.
- **Efficacité opérationnelle accrue** en supprimant les tâches manuelles.

La puissance combinée de l'AIOps et de l'APM

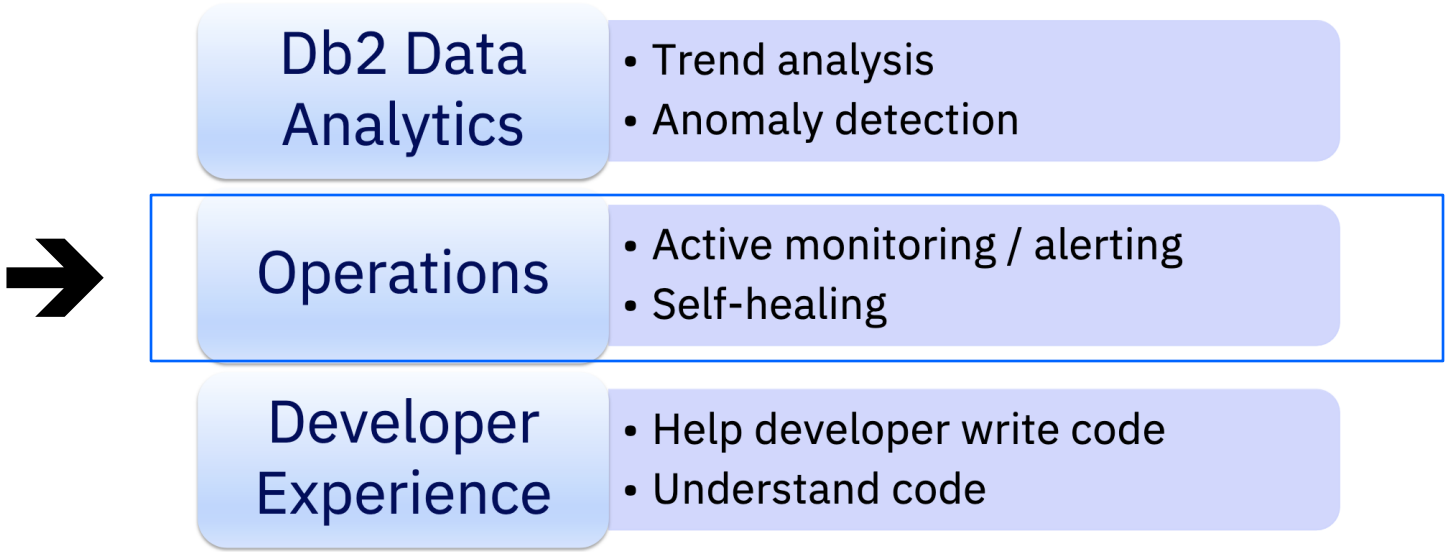
APM (Application Performance Management) est un ensemble d'outils et de pratiques visant à **surveiller et gérer la performance** des applications logicielles pour assurer leur bon fonctionnement. On utilise des outils de tracage / **d'observabilité** des applications afin d'obtenir ces données de surveillance.

Combiner **AIOps** et **APM** = une synergie puissante pour gérer les environnements IT modernes

- → **Surveillance proactive** : L'APM surveille la performance des applications, tandis que l'AIOps utilise l'IA pour prédire et prévenir les problèmes.
- → **Résolution automatisée** : L'AIOps automatise le dépannage basé sur les données APM, réduisant les interventions manuelles.

Scenario : Si une application ralentit, l'APM détecte le problème, l'AIOps analyse les données, identifie la cause profonde et corrige automatiquement le problème ou fournit des recommandations, le tout en temps réel.

Stratégie AI pour IBM i



S12 – AIOps : garantissez la performance applicative avec Instana

Benoit H + Benoit M

S30 – Merlin, DevOps, Git et développement moderne sur IBM i

Demain 10.15→ 11.15

Benoit M

Université IBM i

19 et 20 novembre 2024

IBM i
continuous innovation
continuous integration

IBM Instana et agent IBM i

IBM Instana: Observabilité temps réel pour tous

Des données précises et en temps réel mises en contexte pour toutes les équipes qui en ont besoin

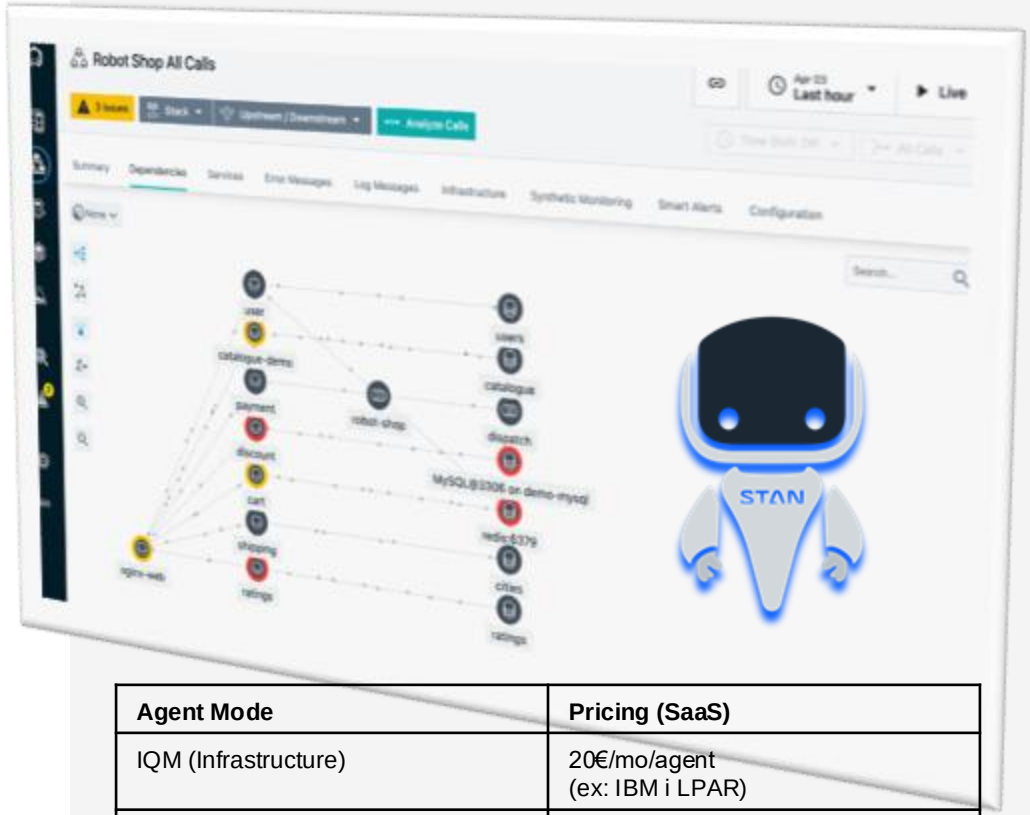
Données haute fidélité - Pas d'échantillonnage, granularité métrique d'une seconde et traçage de bout en bout

Automatisez la résolution des problèmes grâce aux alertes

Comprenez les dépendances entre les applications mobile, Web, les applications et l'infrastructure – plus de 300 technologies prises en charge.

Facile à utiliser. Facile à installer. Aucune compétence spécialisée requise. Tarification simple, transparente et prévisible

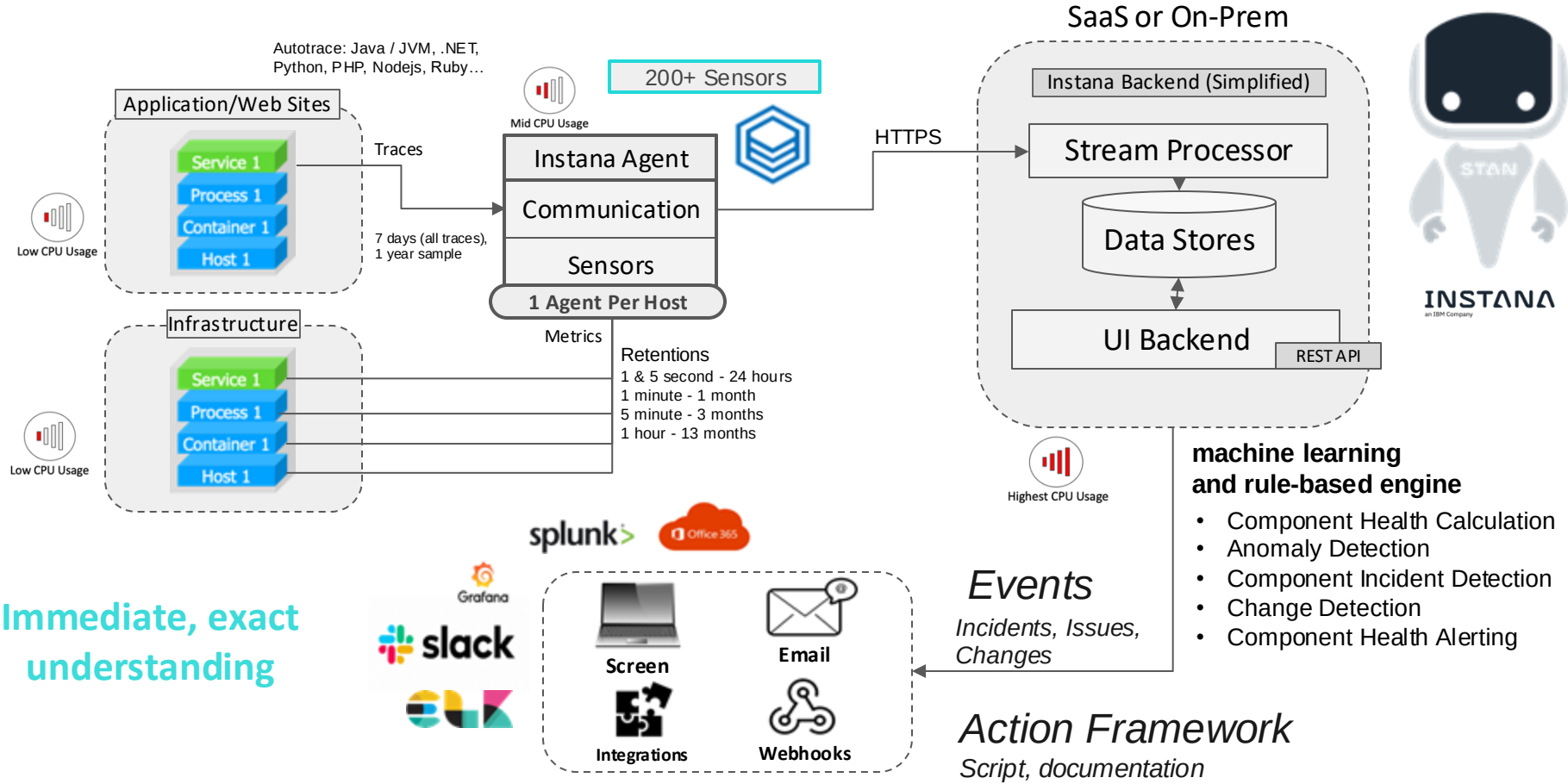
https://www.ibm.com/docs/en/instana-observability/current?topic=configuring-monitoring-supported-technologies#agent-sensors



Agent Mode	Pricing (SaaS)
IQM (Infrastructure)	20€/mo/agent (ex: IBM i LPAR)
APM (incl. IQM)	80€/mo/agent
On Prems:	SaaS Price + Infrastrusture cost

En general , 60-70% IQM, 30-40% APM

Instana : Architecture Générale



Instana & Agent IBM i : Tech Preview

- Agent « Remote » :
  - Agent sous linux
  - Sondes basées sur Script SSH/GO PERFORM
  - Métriques limitées

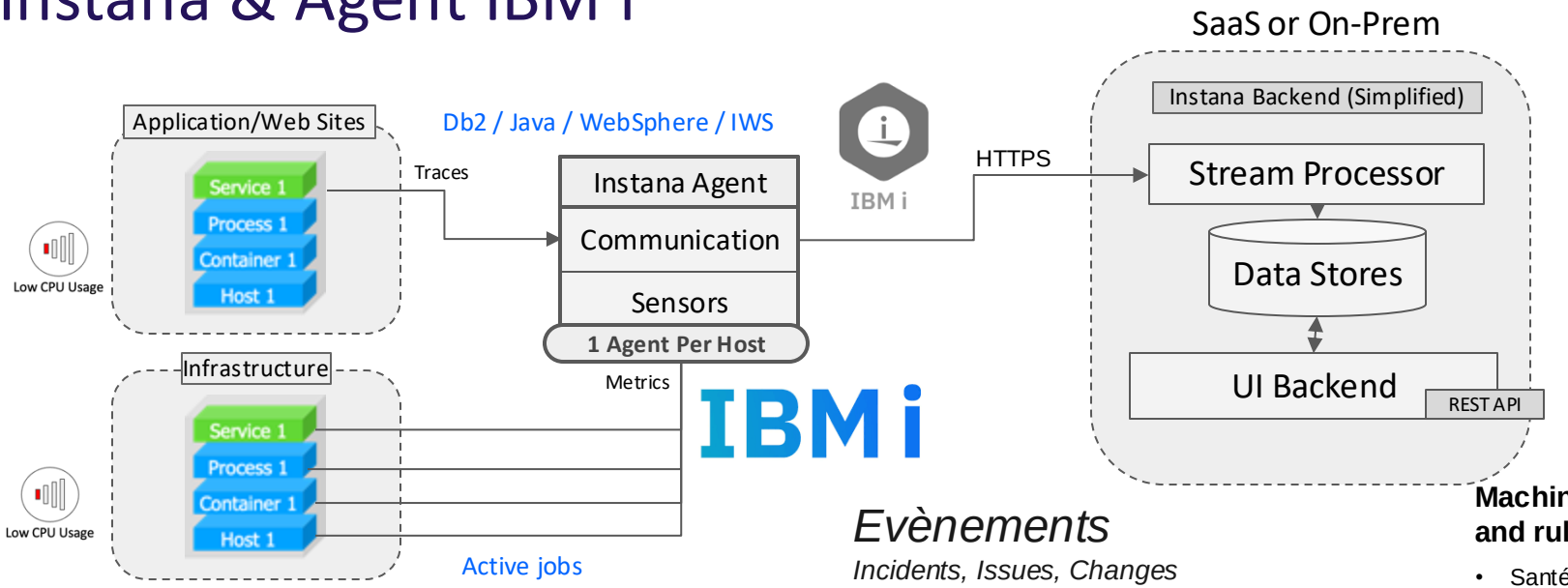
- Sensor Power HMC etc.
  - Remontées d'évènements Hardware

https://www.ibm.com/docs/en/instana-observability/current?topic=configuring-monitoring-supported-technologies#agent-sensors

- Nouveau !!
  - Agent et sondes en local (natives) sur IBM i
  - Données Infrastructure et applicatives

Active jobs
Message queues
Db2 for i
Disks
Network
Java / WebSphere / IWS

Instana & Agent IBM i



Evènements

Incidents, Issues, Changes

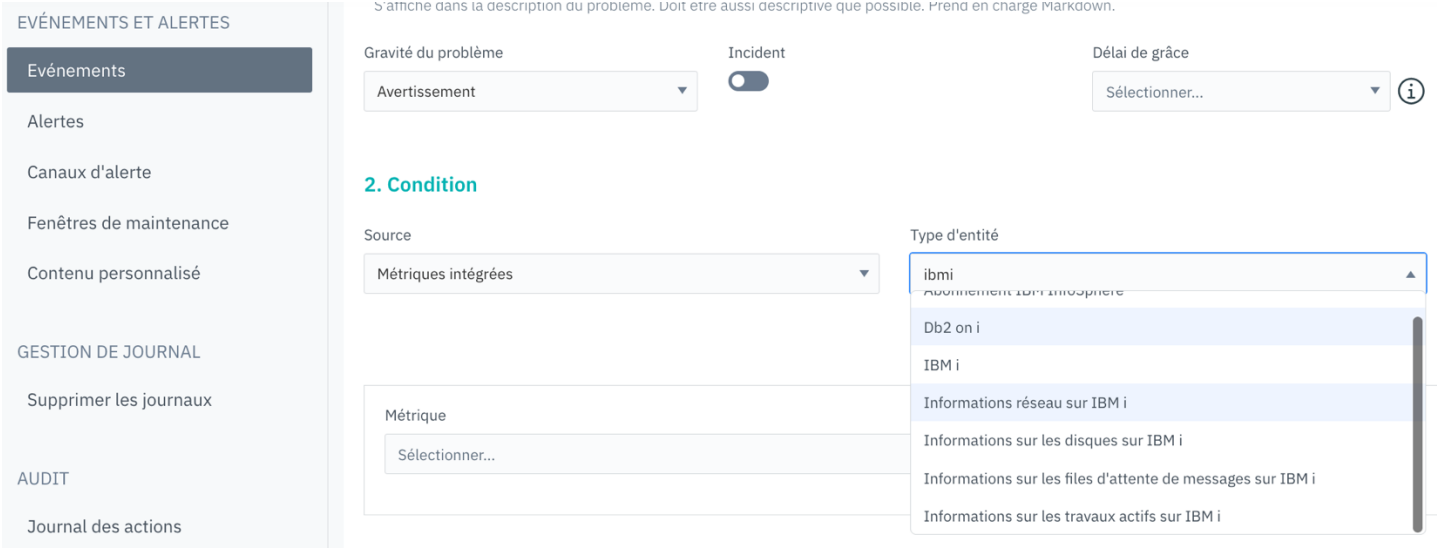
+400 Evènements livrés avec le produit (5 ou 6 pour IBM i)
Exemples:
- IBM i message queue events (qsysopr etc.)
- Disk utilization > 80 %

+ Custom Events /Smart Alerts
Exemples:
- Changement d'état , ex IWS STARTED -> NOT STARTED
- ralentissement requête Web ou SQL etc.

Machine learning and rule-based engine

- Santé des composants
- Detection d'incidents
- Detection de changements
- Alertes

Instana & Agent IBM i : Evènements



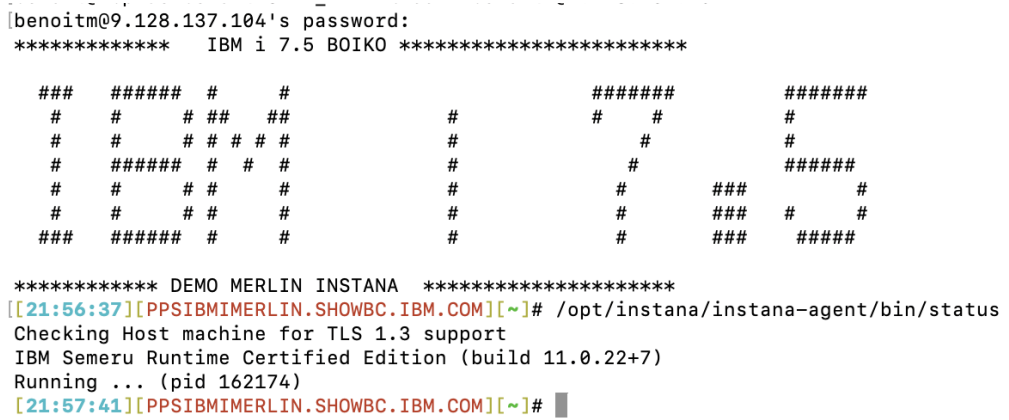
+ sondes applicatives : Node.js , Liberty etc.

Installation de l'Agent natif IBM i

Procédure https://www.ibm.com/docs/en/instana-observability/current?topic=agents-installing-i

Démarrage et verifications:

Scripts /opt/instana/instana-agent/bin/start , stop, status
L'agent est une jvm démarrable en batch (sbmjob)
2 fichiers de configuration à paramétrer avant démarrage



Université IBM i

19 et 20 novembre 2024

IBM i
continuous innovation
continuous integration

IBM

Démonstration

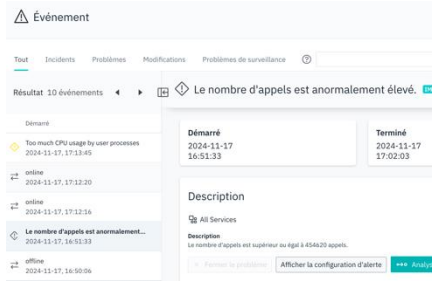
Démonstration

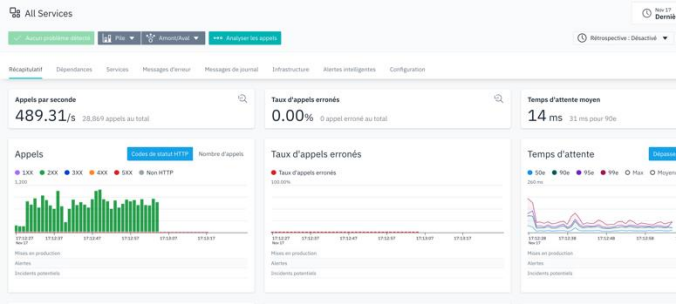
Observabilité d'une application hybride Web/IBM i sous stress, et ciblage/résolution rapide de problèmes de performance.

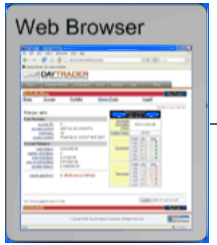
AI : machine learning
et moteur de règle

INSTANA
an IBM Company

Evènement
personnalisé
"Smart Event"



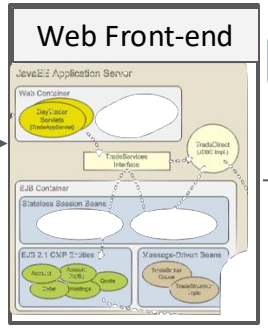




Utilisateurs
(simulation jmeter)

HTTPS

Cloud Native
.NET
➔ **Java/Liberty**
PHP
Node.js
Python
OpenShift/K8s
…



Liberty

JDBC
HTTPS

IBM i

Oracle
AIX
➔ **IBM i**
➔ **Db2 for** i
Mysql
IBM Z
…

API/RPG/DB2 Backend

IBM i

Liberty/IWS

Sensors:
- Active jobs
- Message queues
- Disks
- Network
- Db2 for i
- Java/Liberty/IWS

MERCI

Université IBM i

19 et 20 novembre 2024

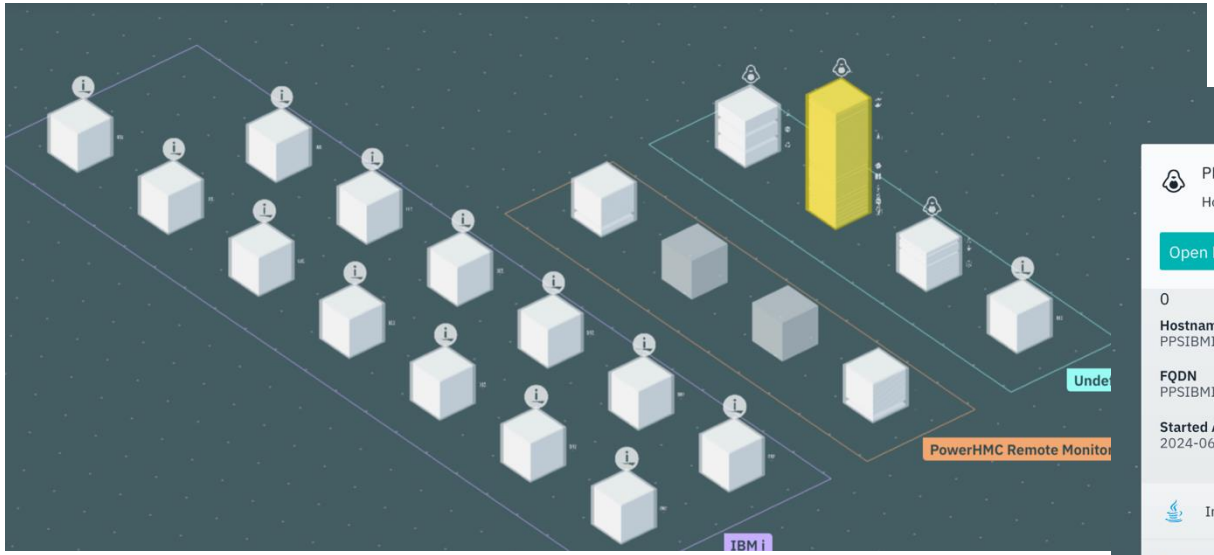
IBM i
continuous innovation
continuous integration

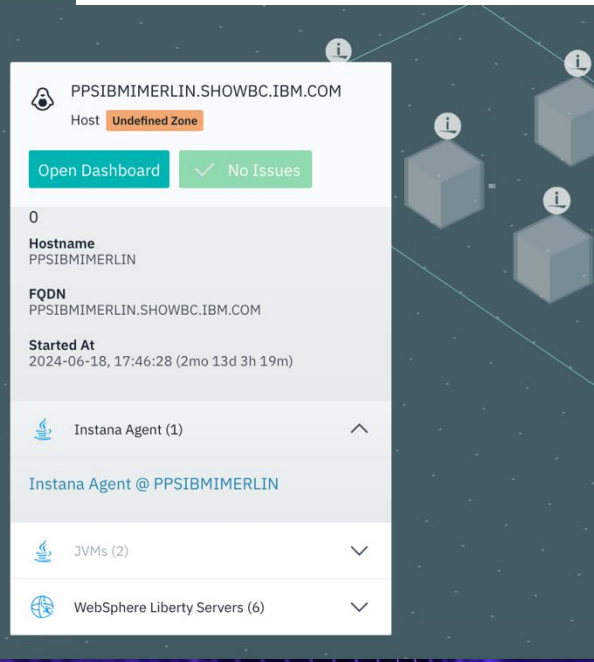
IBM

Démonstration

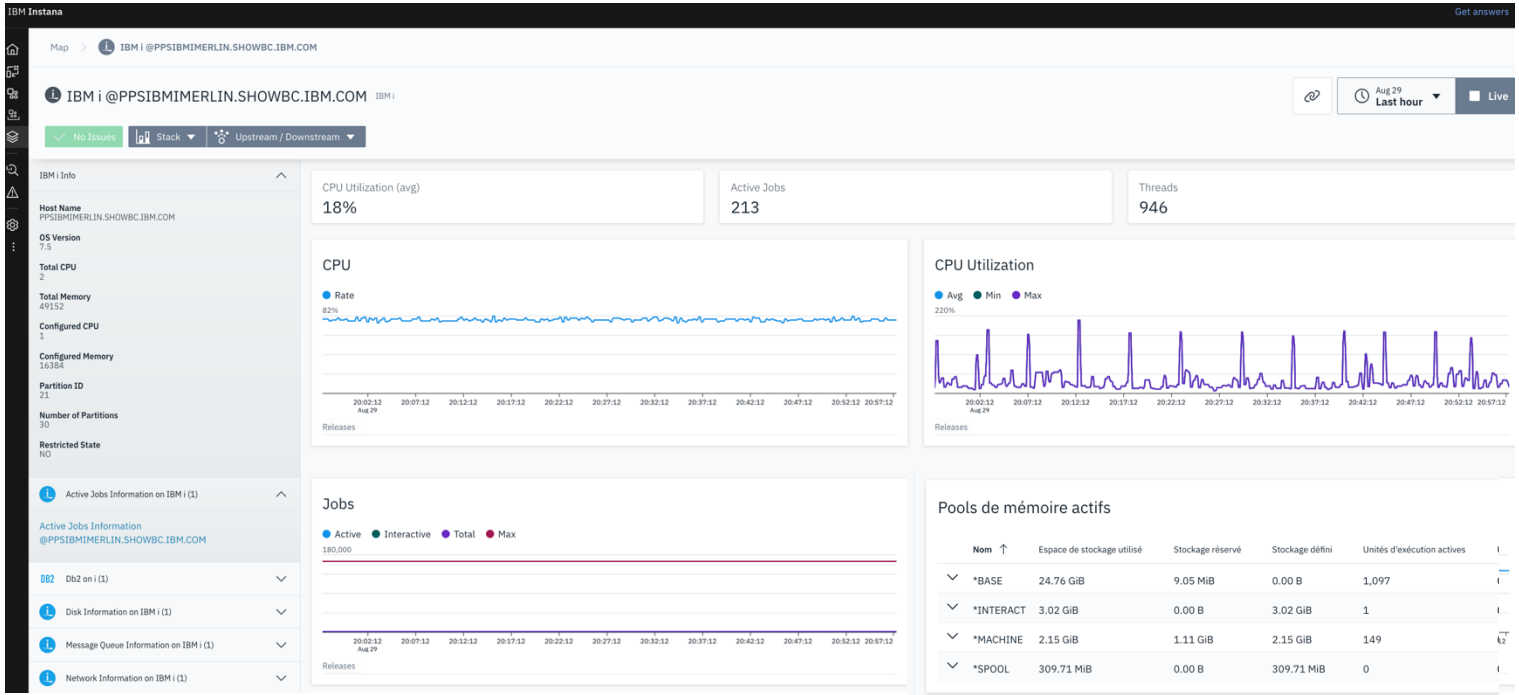
Installation de l'Agent natif IBM i

Vue de l'infrastructure :
IBM i "host agent" et ses sondes db2 , queues , jobs, jvm etc.



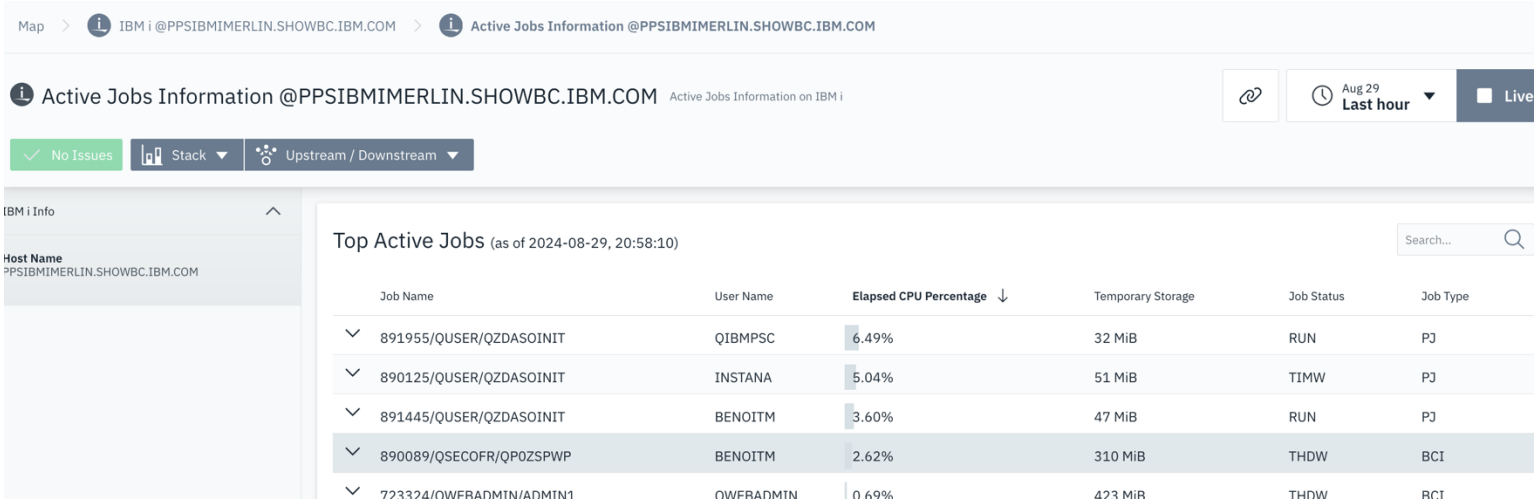


Situation initiale : Agent natif IBM i



- Active Jobs, Db2, Disk, MSGQ, Network, Java…

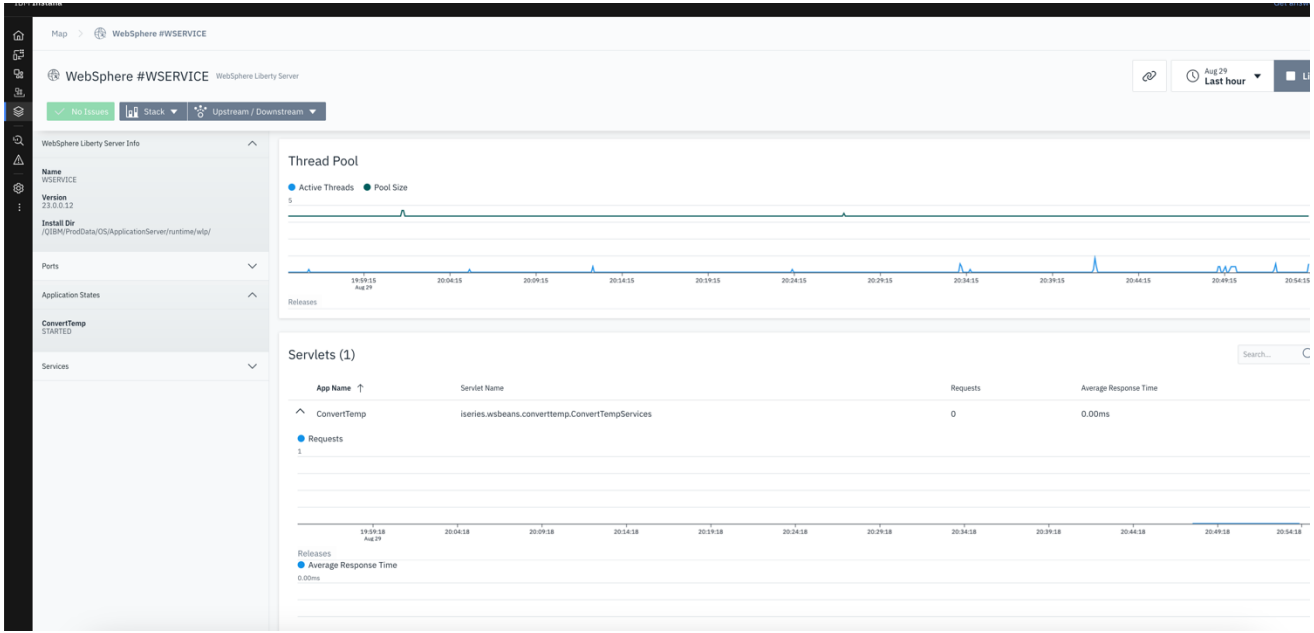
Situation initiale : Agent natif IBM i



- Active Jobs, Db2, Disk, MSGQ, Network, Java…

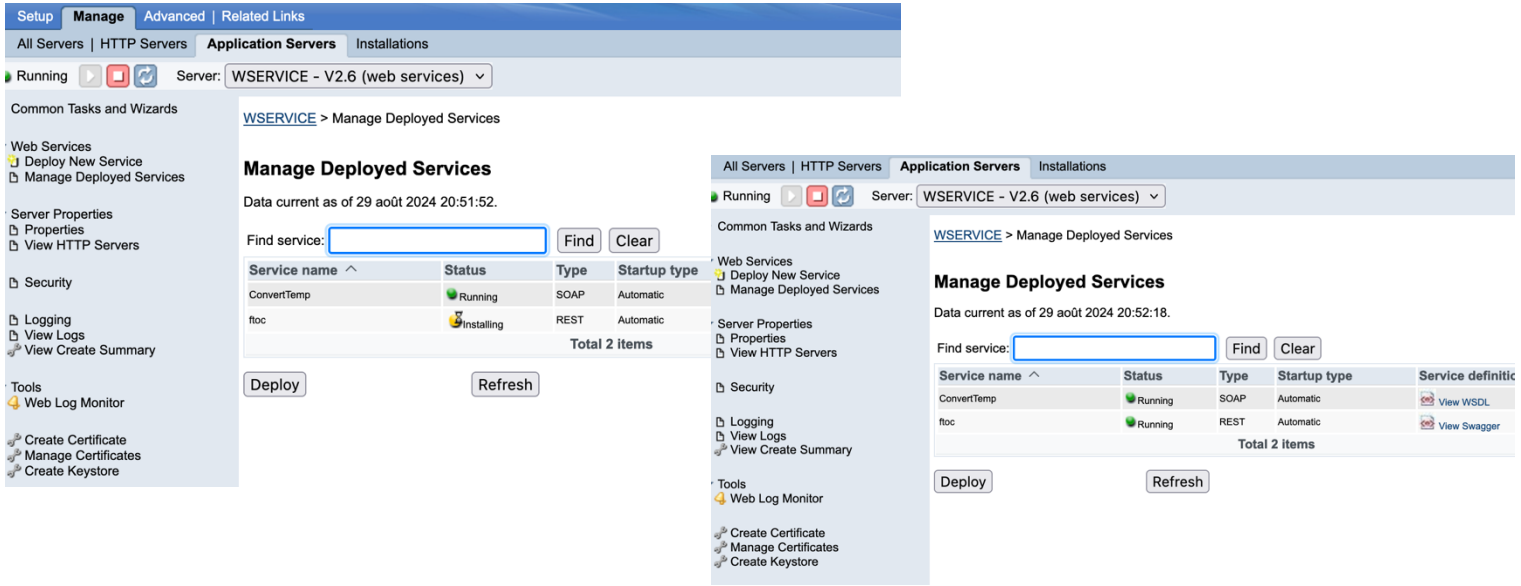
Situation initiale : Agent natif IBM i

- APM pour Java, WebSphere Liberty et IWS sur IBM i



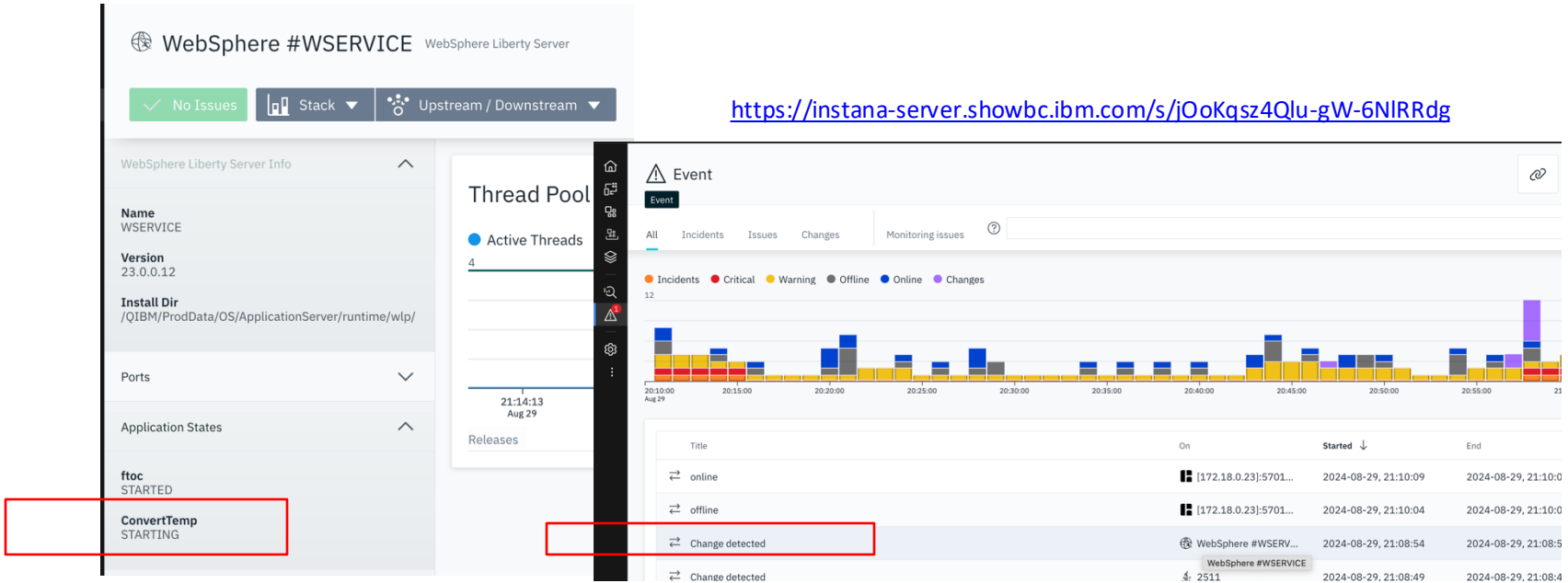
WebSphere Liberty (IWS) avec un service convertTemp (situation initiale avant deploiement)

Déploiement d'un service dans IWS et intégration APM



Deploiment d'un service REST dans WebSphere Liberty (IWS)

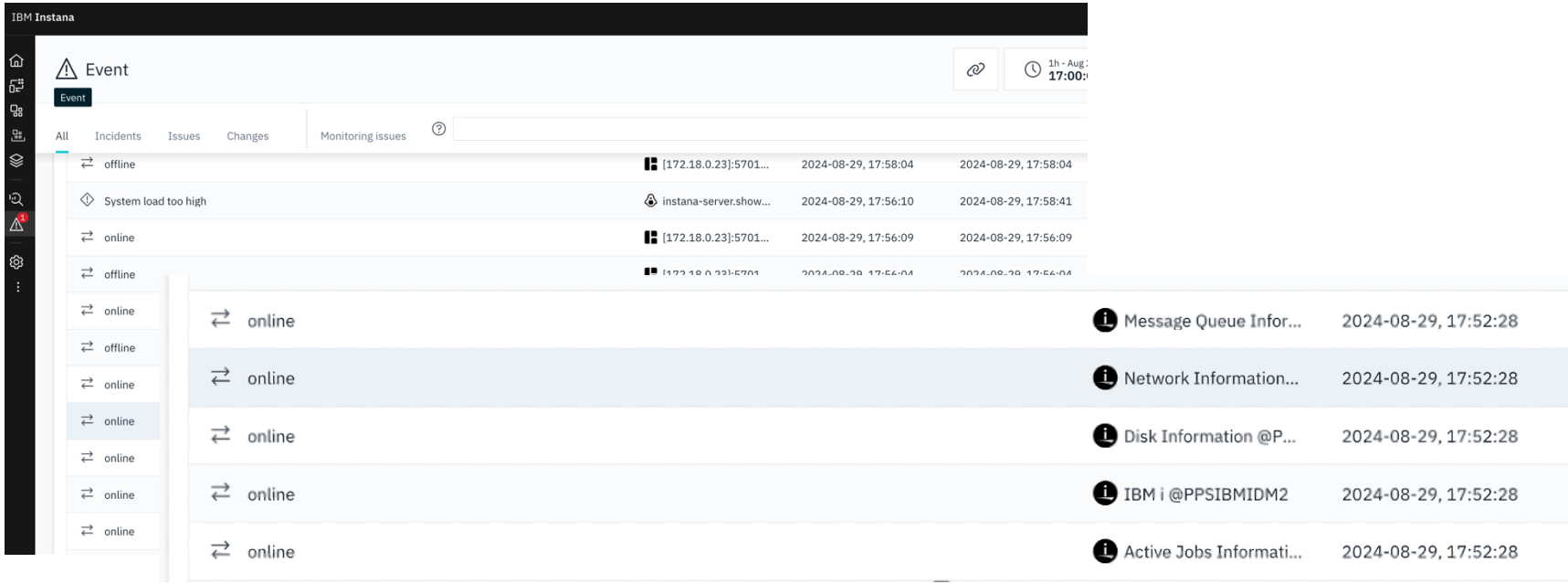
Déploiement d'un service dans IWS et intégration APM



https://instana-server.showbc.ibm.com/s/jOoKqsz4Qlu-gW-6NlRRdg

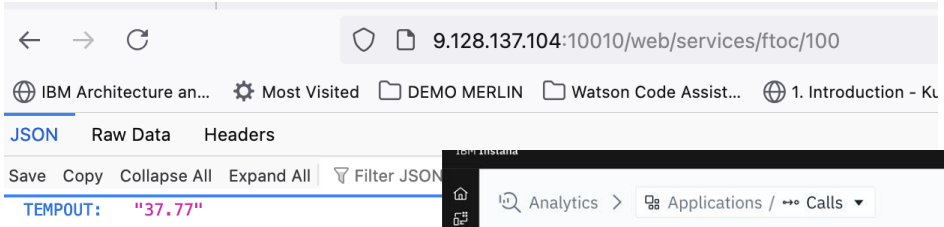
Event reporté en case d'ajout de service, d'indisponibilité d'un service (redemarrage par exemple)

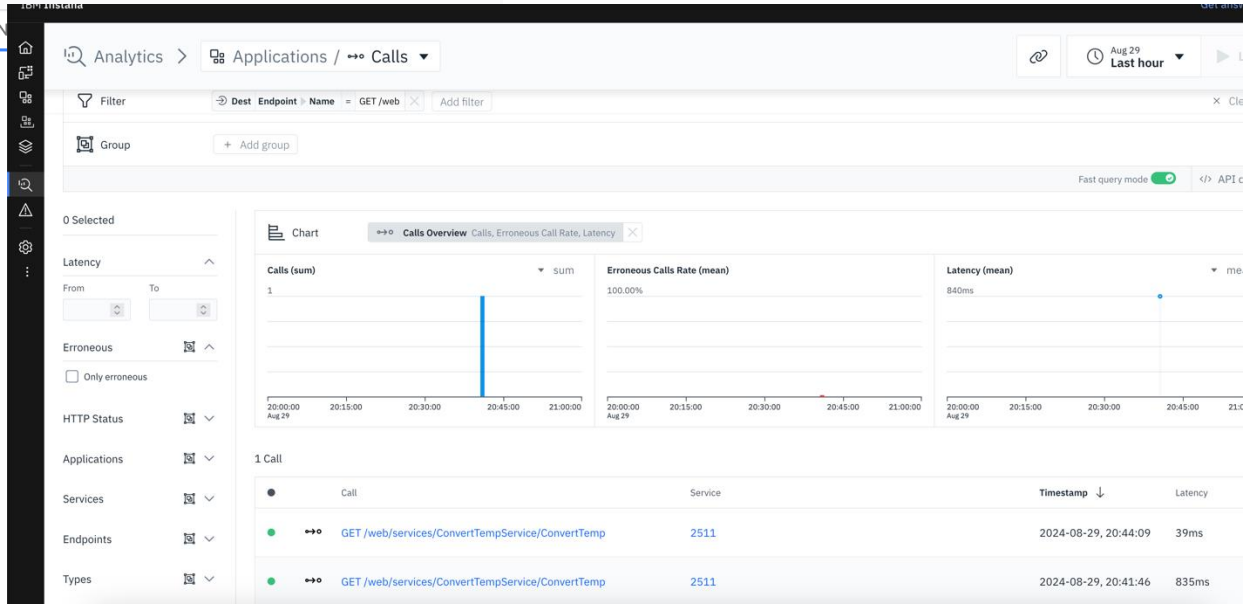
Déploiement d'un service dans IWS et intégration APM



D'autre évenements et alertes peuvent être remontés par l'agent natif IBM i (disk, msgq, CPU, etc.)

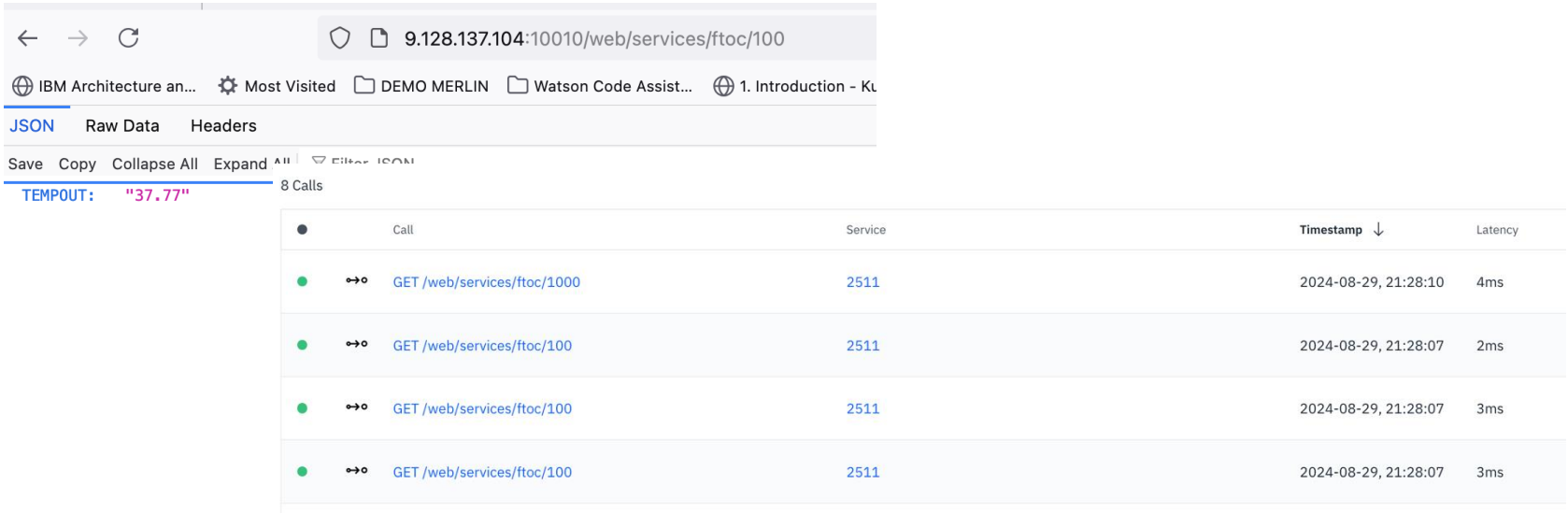
Scenario: Montée en charge IWS (ou Java)





Injection de charge et données de performance d'un service (SOAP, REST…)

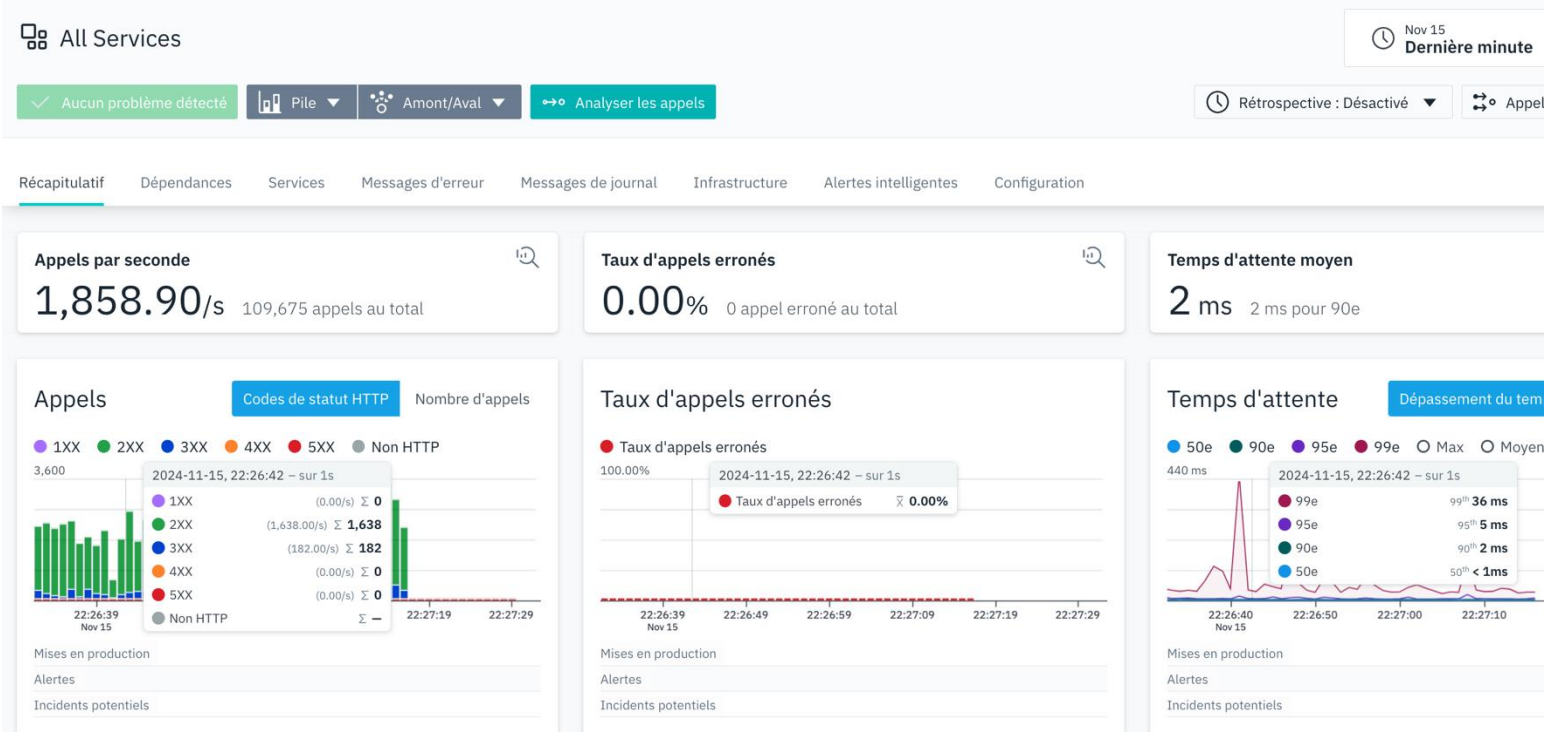
Scenario: Montée en charge IWS (ou Java)



Injection de charge et
données de performance
d'un service (SOAP, REST…)

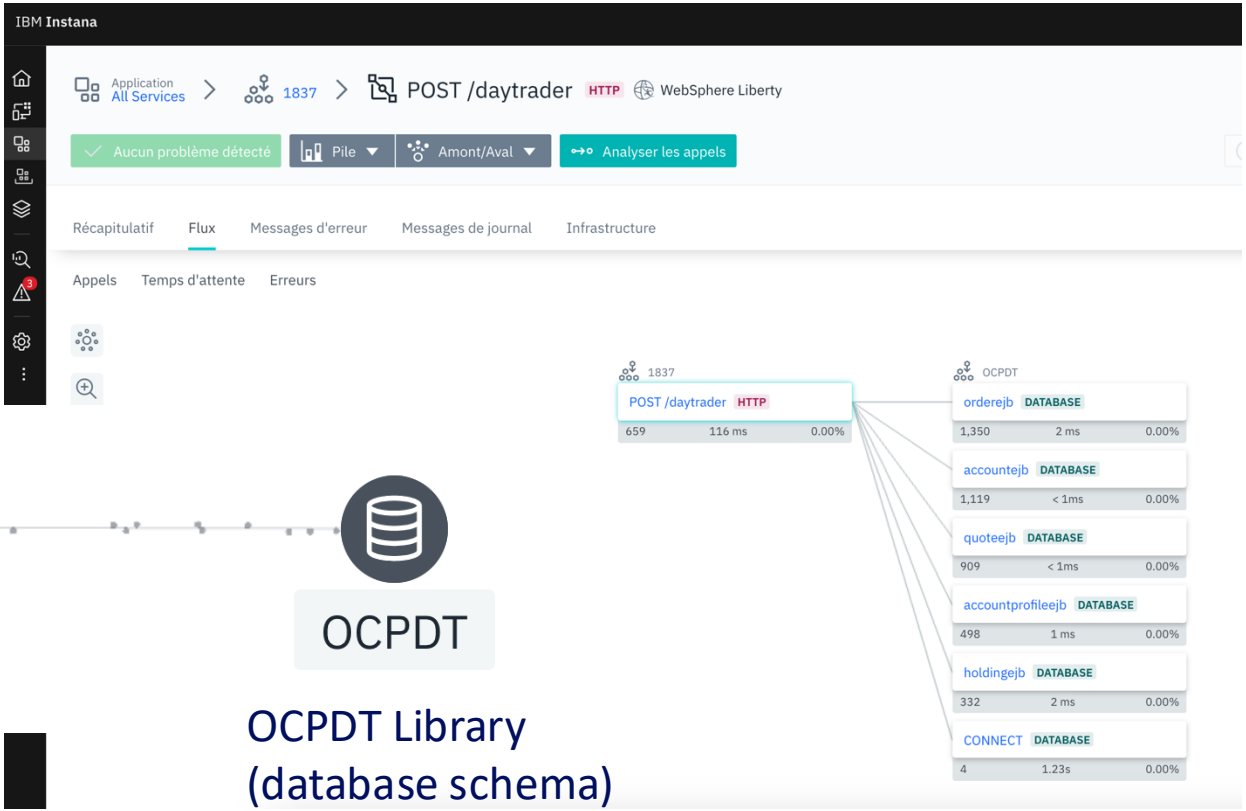
Scenario: Montée en charge IWS (ou Java)

APPLICATION :



Scenario: Montée en charge IWS (ou Java)

APPLICATION :



IWS/Liberty

OCPDT Library
(database schema)

Scenario: Montée en charge IWS (ou Liberty/Java)

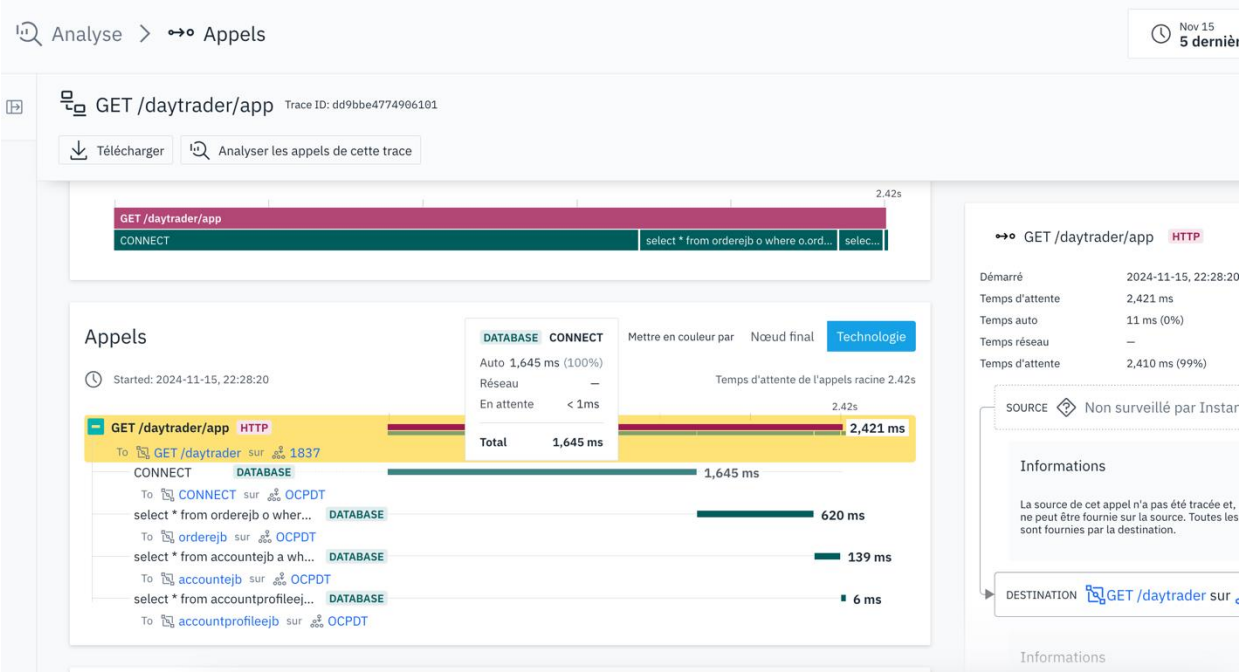
ANALYSE :

- Temps de réponse important ?

Determination de root caus
quelques instants:

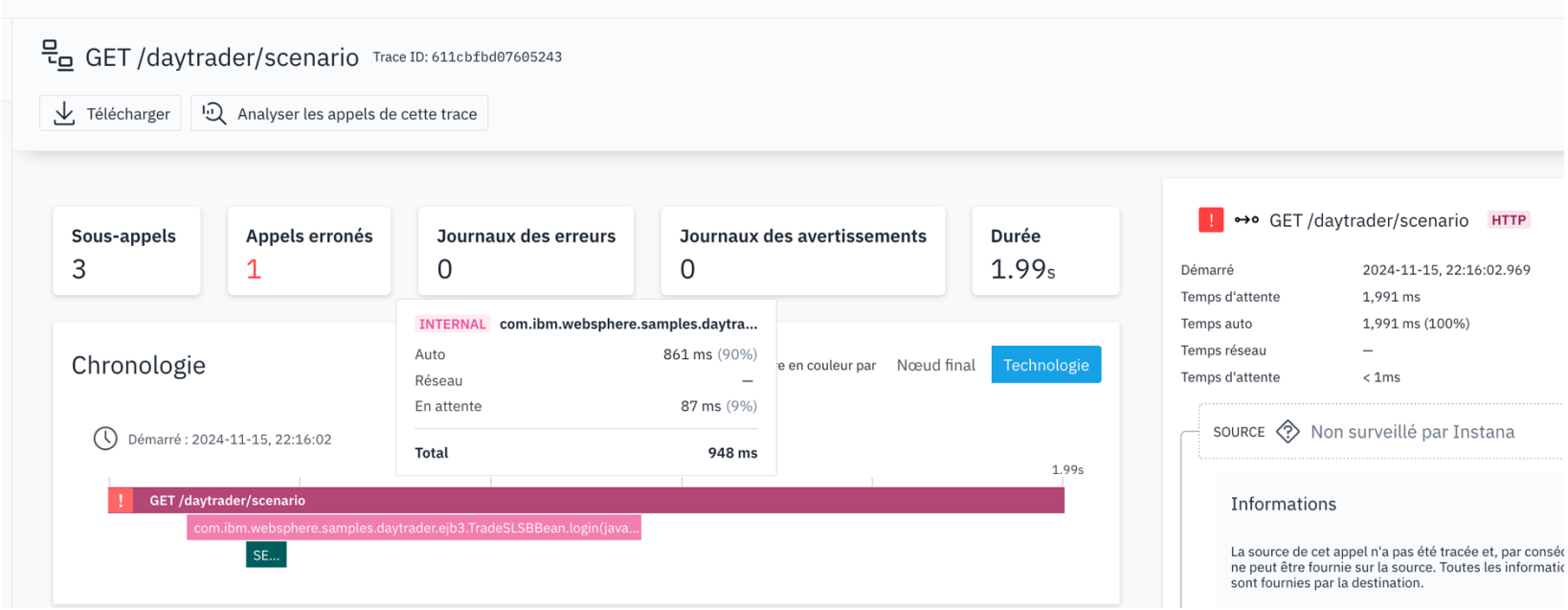
Ici, CONNECT trop long,

➔ Pool de connexion trop petit?



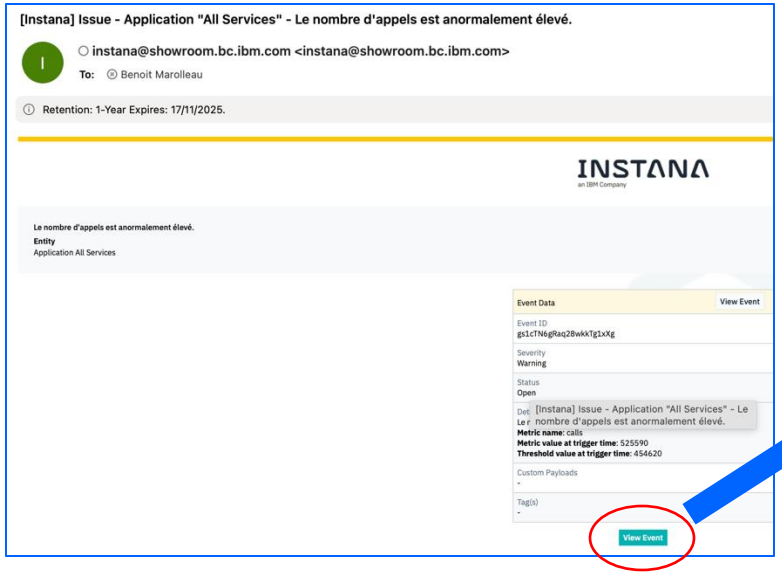
Scenario: Montée en charge IWS (ou Liberty/Java)

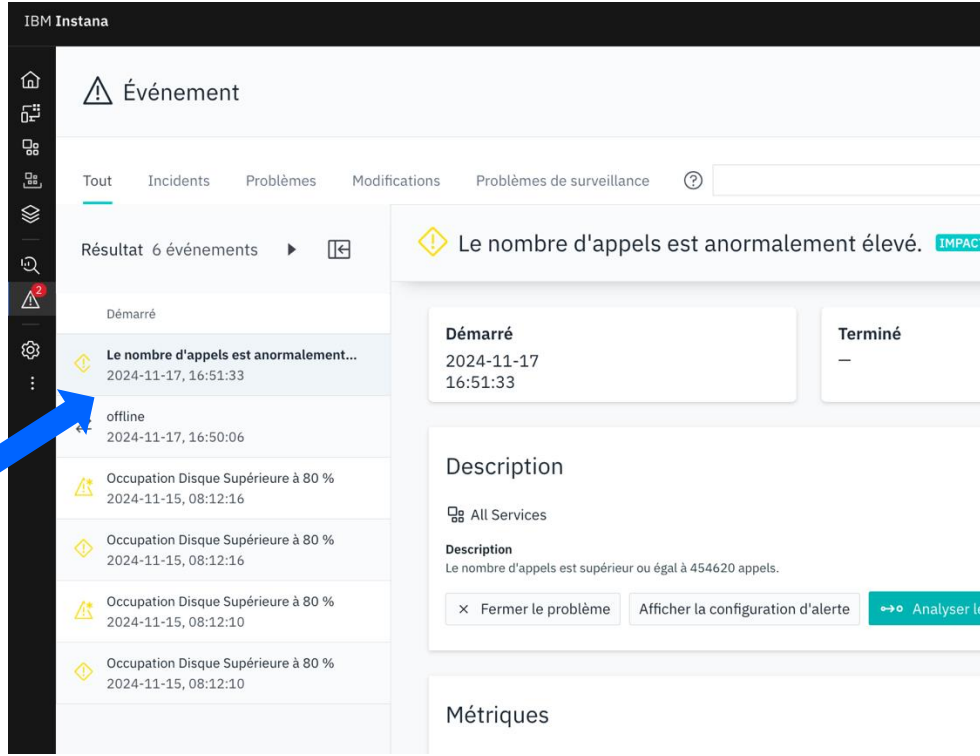
- ANALYSE :
  - Remontées des erreurs applicatives pour analyse



Evènements et Alertes

- ALERTING
  ex: Email channel

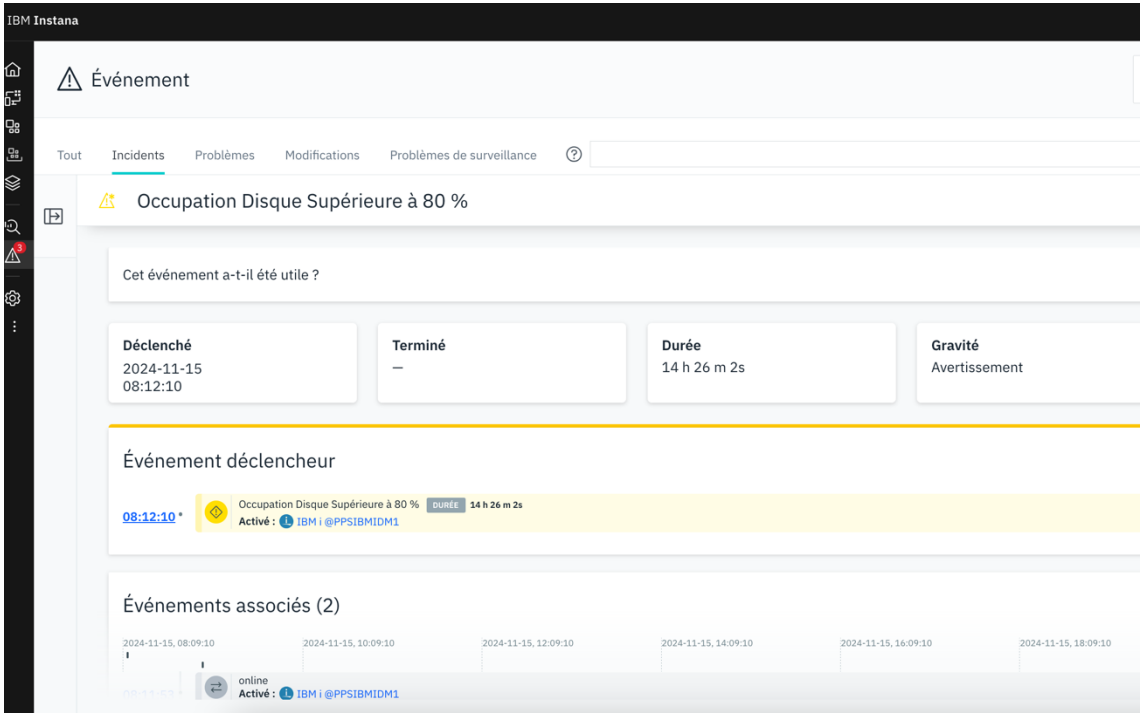




Evènements et Alertes

- Détail d'un évènement

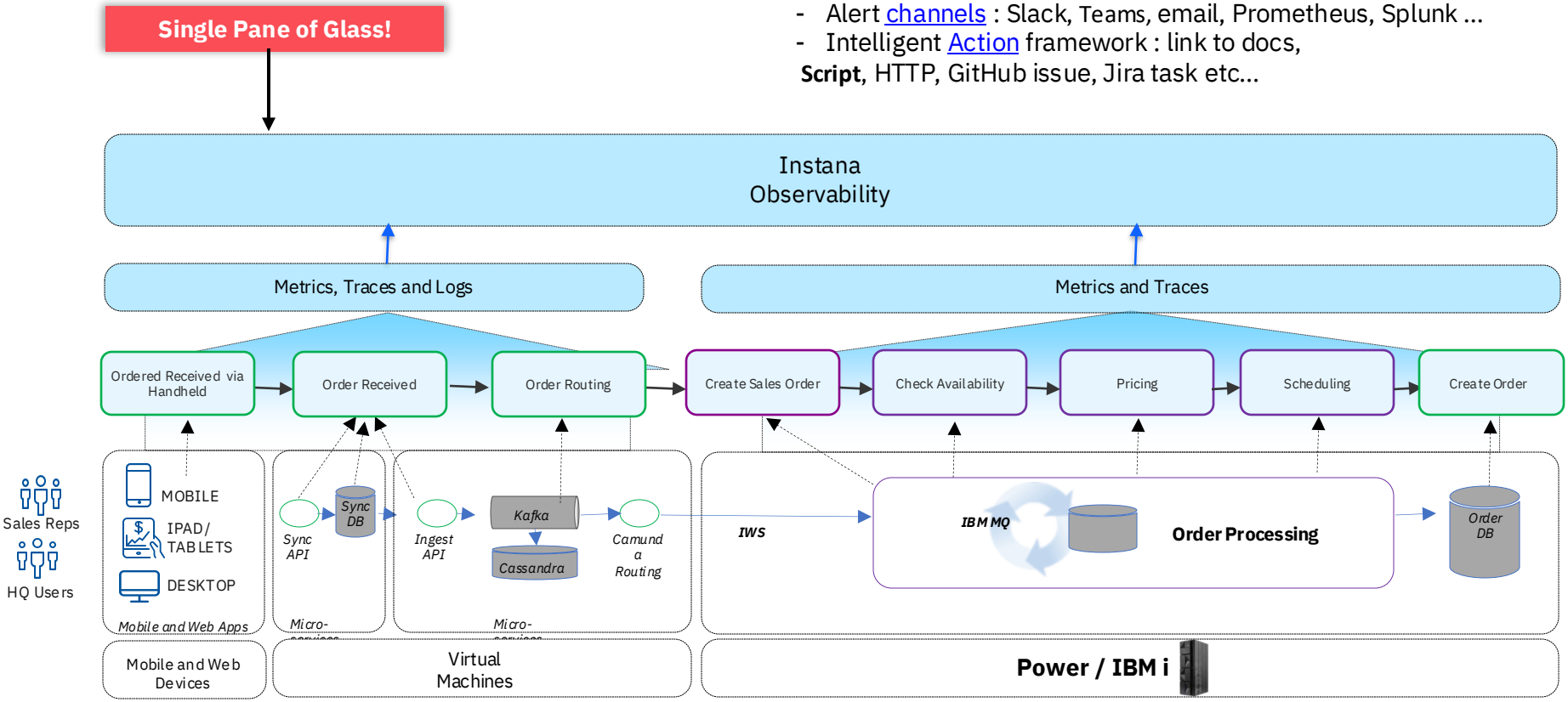
et évènement associés



IBM i
continuous innovation
continuous integration

Backup slides

Instana can observe the **entire Hybrid Application Landscape**



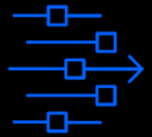
IBM's Hybrid Cloud Management
AI-driven automation of IT

Faster Decision Making

Full-stack, enterprise observability

Smarter Resource Allocation

Dynamic resource management and cost optimization



Analytic Insights

Autonomous problem determination, remediation, avoidance

Observe

INSTANA

an IBM Company

Real-time understanding of environment

Optimize

turbonomic

an IBM Company

Maximize efficiency, compliance

Automate

IBM Cloud Pak for Watson AIOps

Automate IT availability

AI-Powered Automation

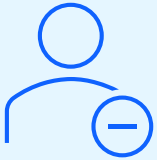
IT under pressure: Meeting greater customer demands with fewer skilled employees

43%

of customers have changed brand loyalty due to a bad user experience

50%

of all employees need to upskill or reskill by 2025 for responsibilities arising from automation and new technologies



$250K

the average cost of an hour of downtime when a revenue generating production service is impacted

IBM Instana Observability

Real-time observability to understand your application and infrastructure stack

Full-stack visibility with context to assure application health and performance

Enterprise Observability

Full-stack application visibility

Mapping, tracing, and profiling

1 second granularity and no sampling

Automatic and Continuous

Self-monitoring, auto-updating single agent

Discovery, deployment, and configuration

Real-time change detection and dependency mapping

Context and Visualization

Zero-configuration dashboards, alerting, troubleshooting

Automatic anomaly detection

Unbounded analytics

Intelligent Action

Root cause analysis with correlated alerting

Guided troubleshooting

Immediate feedback of pipelines and canaries

IBM Automation / © 2023 IBM Corporation

Instana delivers measurable business outcomes

Risk

- Improved application availability
- Quicker resolution of incidents

↓ 69% MTTD
↓ 52% MTTR
↑ +5 bps Availability

Revenue

- Increased deployment frequency
- Optimized infrastructure spend

↑ 3x Deployments
↑ 75% Cloud efficiency
↓ 50% Cloud spend

Efficiency

- Increased operational efficiency
- Fosters DevSecOps culture

↓ 86% Time & effort
↑ 20% Develops time

**Quantified Impact is based on actual customer metrics representing conservative average gains. Impact should be uniquely quantified for each company.*

IBM Automation / © 2022 IBM Corporation

Acceleration to AI-powered IT Operations separates leaders from their peers...

ExaVault

Provides mission-critical file transfer solutions for companies in 100 countries, receives > 50 million API calls daily. IBM Instana provides instant visibility into application performance issues.

56.6%
reduction in mean time to resolution (MTTR)

Electrolux

Worldwide enterprise producing 60 million appliances yearly, automated IT with CP4WAIOps boosting efficiency and contributing to ambitious environmental sustainability goals.

1,000 hours
per year saved

Providence

Providence deployed Turbonomic which freed up financial and human resources — which can now be invested into modernization initiatives that provide better healthcare outcomes for patients.

$2M
reduced Cloud spend

Devereux ADVANCED BEHAVIORAL HEALTH | UNLOCKING HUMAN POTENTIAL™

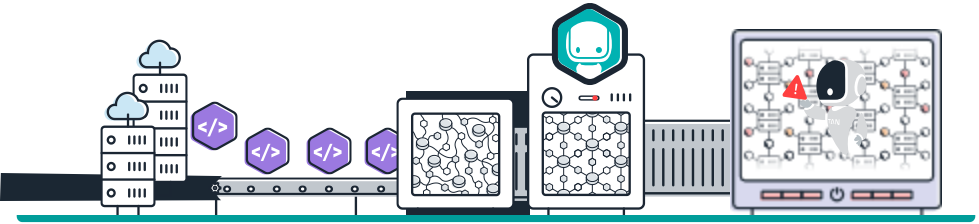
Previously, when one of its SAN volumes ran out of space, Deveraux faced a three-hour system disruption. With SevOne NPM they detected the SAN issue hours in advance, instead of having a three-hour disruption

40%
of issues caught before end user impact

IBM **Instana** Observability

Real-time observability for everyone—and anyone.

All the data. With all the context. For all your teams.



Automate full-stack visibility

Collect accurate data with context

Turn data into intelligent action

Ease of Use

MORE INNOVATION

20%

free developer time

MORE SPEED

3x

increase in deployments

MORE EFFICIENCY

52%

reduction in MTTR

Why Instana?

All application stakeholders, from DevOps and SRE to ITOps, Platform Engineering, Dev and even business side users - get the ***data they want*** with the ***context they need***.

Pricing is simple and predictable

Teams get unlimited use of the platform, worry-free without surprises.

- ✓ **Applications** are automatically discovered and monitored (no reboots, no labels, no tagging)
- ✓ **Full-stack context** is automatically discovered with 1-second granularity and an end-to-end trace of every call
- ✓ **Automatic** rollbacks and incident remediation can be triggered by intelligent action (before incidents impact end users).

Easy to use, **Easy** to deploy, **Easy** to understand pricing

- Simple, predictable and transparent pricing – no surprises
- Automated discovery and deployment
- All-inclusive (EUM/DX, mobile, database, synthetics, serverless, profiling)
- Unlimited users
- No data ingestion charge
- No data storage charge
- **No variable charges!**

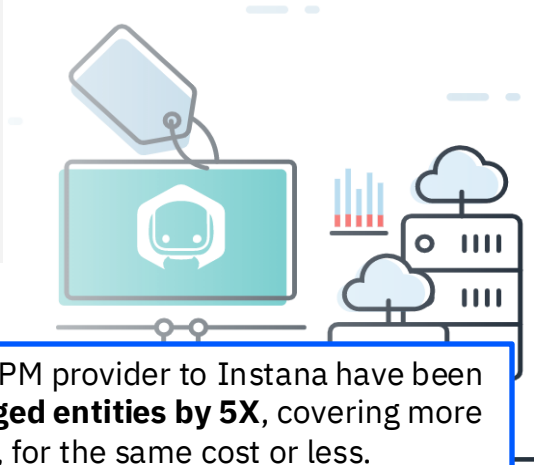
Agent Mode	Pricing (SaaS)
IQM (Infrastructure)	20€/mo/agent (ex: IBM i LPAR)
APM (incl. IQM)	80€/mo/agent
On Prems:	SaaS Price + Infrastrusture cost

En general , 60-70% IQM, 30-40% APM

"On a single screen, Instana presents the status of the complete architecture. Always simple to use and modify."

An IBM Instana user

From G2Crowd.com



Customers who moved from another APM provider to Instana have been able to **increase the number of managed entities by 5X**, covering more applications and infrastructure, for the same cost or less.