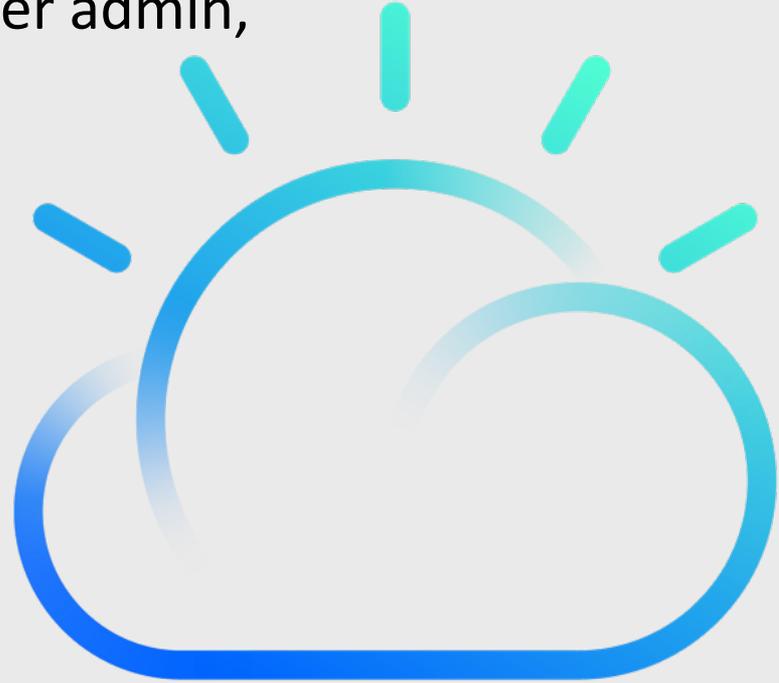


IBM Informix 14.10 – What's New?

Upgrade to higher performance, lower admin,
and more robust analytics

Informix User Group Meeting – Atlanta
Wednesday, April 17, 2019



Shawn Moe
Chief Software Architect, HCL



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@pradeepnatar

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Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.

Save the Date – IIUG World 2019 – September 22-26

Torrance Marriott, Redondo Beach, CA USA.



Cindy Lichtenauer
IIUG President
2019 Lifetime
IBM champion

Agenda:

IBM Informix offering priorities

Major themes in IBM Informix 14.10

Key technical enhancements

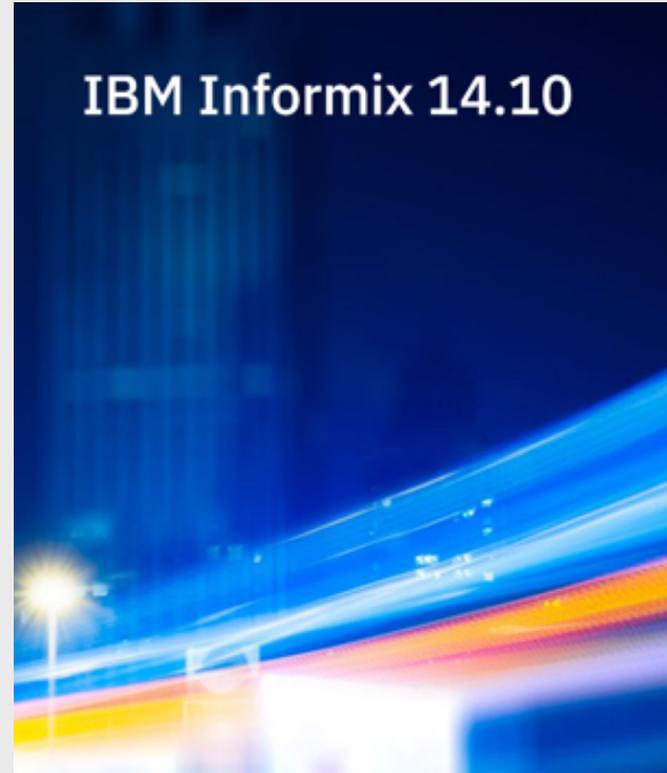
Installation simplified

Security

InformixHQ

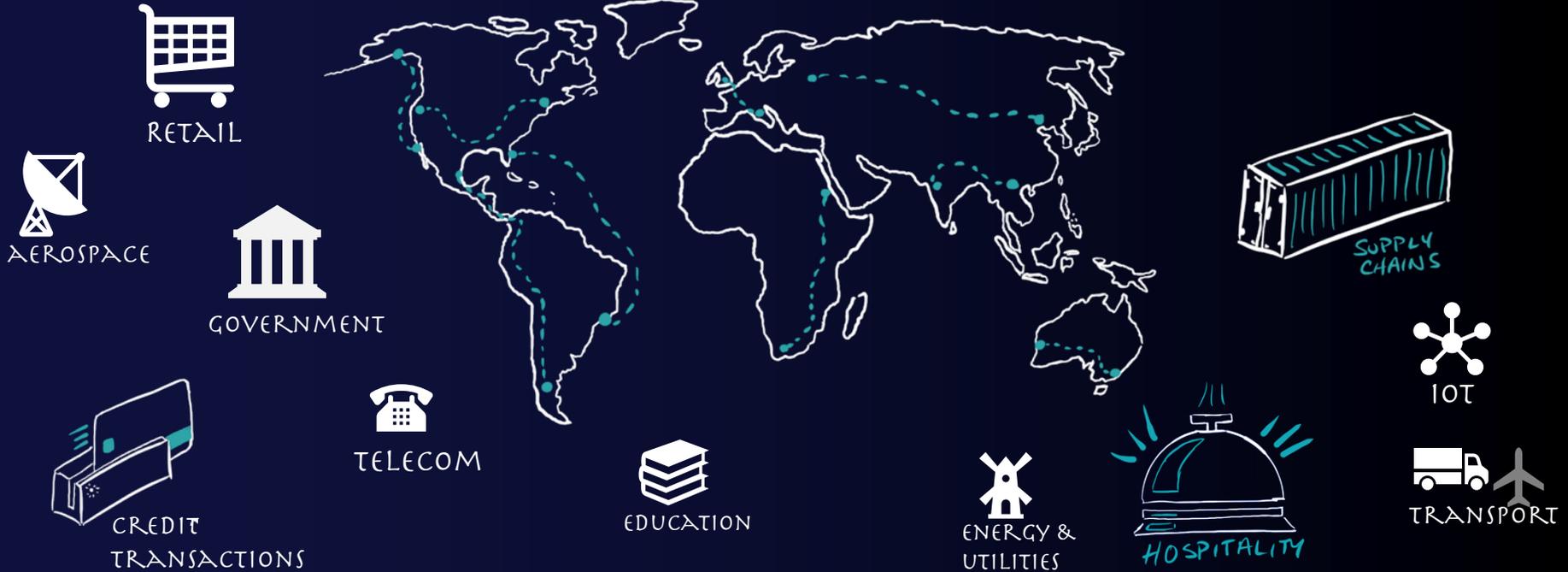
IBM Informix for Hybrid Cloud

Recap Q&A





Where is IBM Informix **used**?



IBM Informix is **everywhere**.

What are the major themes in IBM Informix 14.10?



Faster

Significant performance improvements for replication workloads and OLTP



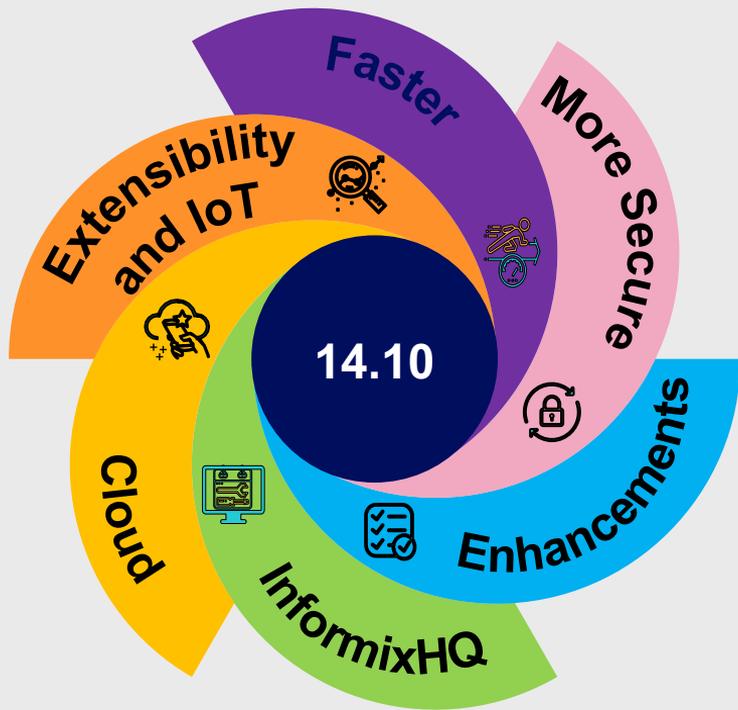
More Secure

Provides higher security for encryption keys and Transport Layer Security



Enhancements for Usability, Administration, and Increased Uptime

Customer RFEs implemented to include in-place alter improvements, renaming of indexes and constraints online, and Common Table Expressions



InformixHQ

New, fully supported, graphical administration tool



Cloud & Containerization

New VPC pricing metric for easier license monitoring. Docker Hub images



Extensibility and IoT

ARMv8 support
Enhanced timeseries granularity and spatial projection systems

What is IBM Informix 14.10?

14.10 is Faster!



- Significant performance improvements in SDS, RSS and HDR secondary updates

Log replay performance improvements



- Applying transactions to secondaries (RSS, SDS, HDR) has been optimized for performance under heavy load
 - Performance tests show up to **5X increase** in throughput when compared to Informix 12.10 benefiting all customers using these data availability solutions
 - Similar improvement observed in crash recovery performance
- New config parameters for performance tuning
 - 'onstat -g laq' output shows replication latency and log replay rate

What is IBM Informix 14.10?



14.10 is Faster!

- Significant performance improvements in SDS, RSS and HDR secondary updates - **up to 5X increase**
- OLTP transaction performance - **up to 10% faster** than 12.10
- Java UDR performance improvements - up to **40% faster**
- JSON and REST listener performance improvements - up to **2x faster**
- JDBC smart large object access speed improvements - **more than 60%**

What is IBM Informix 14.10?



14.10 is More Secure!

- External keystore provides higher security for encryption keys
- Integrated encryption for *onbar* and *ontape* backups

Integrated encryption for your backups

- Informix Backup and Restore utilities now have the capability to internally encrypt and decrypt your storage
 - On-Bar, ontape, archecker, onlog utilities are supported
 - dbspace, blobspace, smart blobspace and logical log backup data can be encrypted
- Amazon AWS Key Management Service (KMS) is used for generation and storage of encryption keys for your backups
- Encryption key is itself encrypted and stored together with the data
- The same utilities also offer a simple way to encrypt and decrypt data using a locally provided static encryption key

What is IBM Informix 14.10?



14.10 is More Secure!

- External keystore provides higher security for encryption keys
- Integrated encryption for *onbar* and *ontape* backups
- Latest encryption support
- Smart Trigger audit trail

What is IBM Informix 14.10?



14.10 has Customer requested Enhancements for Usability, Easier Administration, and Increased Uptime!

- Common Table Expressions
- Updated Unicode specification support
- New commands to automate configuration of Enterprise Replication between two servers
- One Informix binary with simple key based licensing to upgrade from edition to edition

Installation Simplified for 14.10

- “Base” image is Developer Edition – everyone starts with this!
- Edition Installer used to “promote” to your entitled license
- Installation process:
 - Install the Developer Edition
 - Run the edition installer
- Why?
 - Removes the need to completely reinstall the product for a new edition
 - “promoting” or “demoting” an existing installation is a simple operation
 - Solution goes through DevOps pipeline (dev, test, staging, production) without reinstalling Informix

What is IBM Informix 14.10?



14.10 has Customer requested Enhancements for Usability, Easier Administration, and Increased Uptime!

- Common Table Expressions
- Updated Unicode specification support
- New commands to automate configuration of Enterprise Replication between two servers
- One Informix binary with simple key based licensing to upgrade from edition to edition
- JDBC 4.2 compliance
- CLIENT_LABEL tags client name or program name for server-side monitoring
- Improved uptime by changing from Slow ALTERS to in-place ALTERS

14.10 Improves uptime!

Slow ALTERs are very expensive and so are generally avoided, but in 14.10:

- Many Slow ALTERs have been enhanced to be in-place ALTERs:
 - Altering character type data from one character type to another
 - Altering between INT, BIGINT, INT8, SERIAL, BIGSERIAL, SERIAL8 types
- With these in-place ALTER improvements some index rebuilds can be avoided

Altering Primary Key (PK) columns can require downtime when there are Check Constraints and Foreign Keys (FK), but in 14.10:

- Rebuilding the Check Constraints and FKs for PK ALTERs between many INT, BIGINT, INT8, SERIAL, BIGSERIAL, SERIAL8 types can be avoided and/or postponed
- Many new ALTER PK syntax additions have been added to Informix SQL

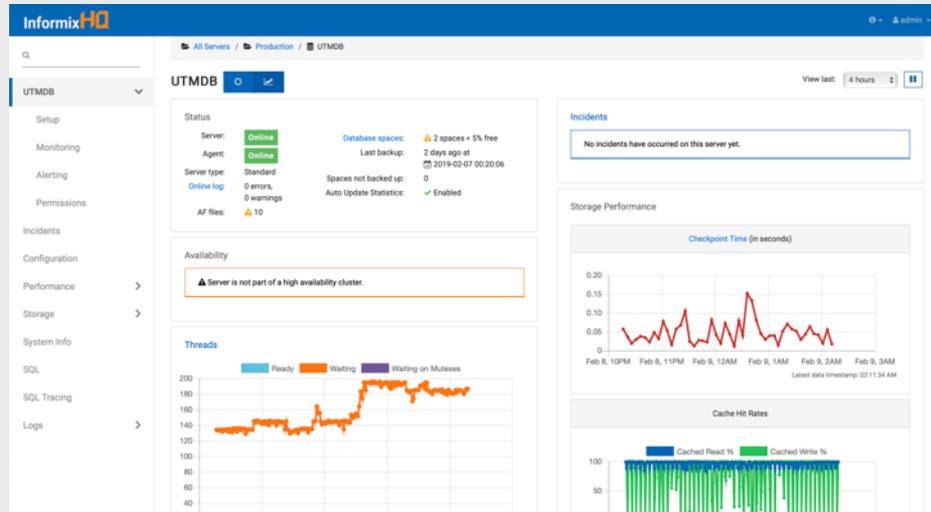
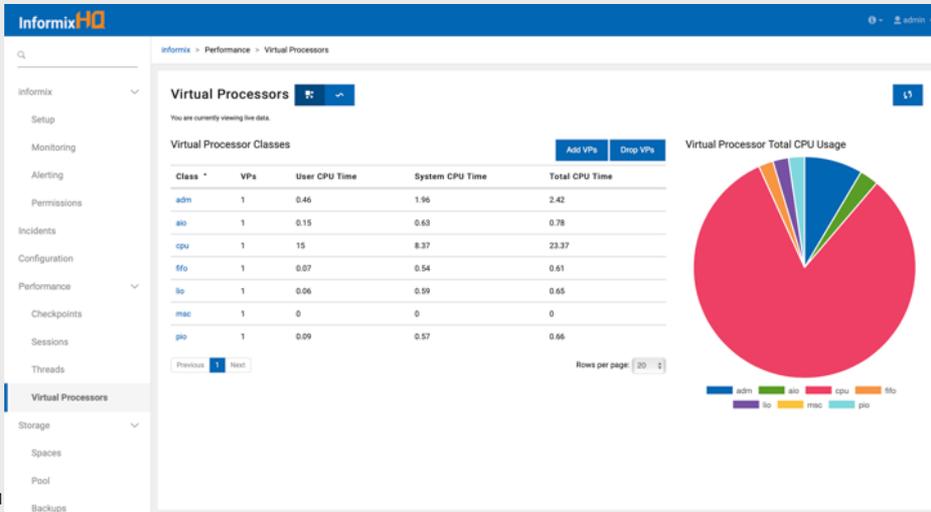
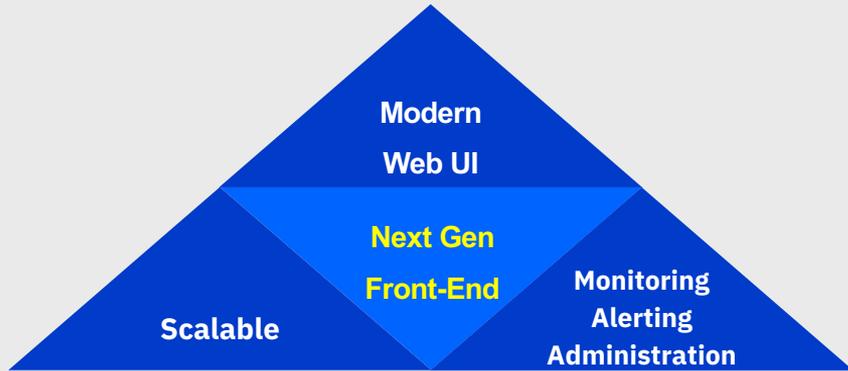
What is IBM Informix 14.10?



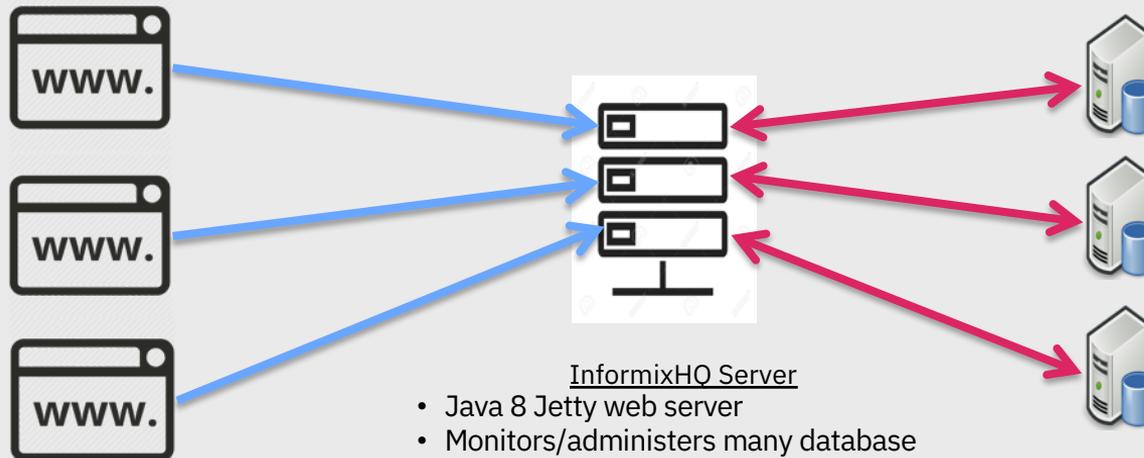
14.10 has InformixHQ!

- New web based administration and monitoring tool!
- Integrated with all Informix versions with full support
- Supports integration with modern IT infrastructure tools like Pager Duty, Twilio, email

InformixHQ 1.0.0



InformixHQ Architecture



User Interface (Web)

- Redesigned for smoother experience
- Modernized tech and design
- Written in Angular 2 (Javascript)

InformixHQ Server

- Java 8 Jetty web server
- Monitors/administers many database servers
- Connects directly to database server for
 - Live Data
 - Administration
- Connects to Monitoring agent for
 - Monitored data
 - Events
- REST API
 - For website, tools, 3rd parties

Monitoring Agent

- Java 8 agent
- Installed on each production database server
- Requires only read access to system
- Native command execution to gather OS statistics

What is IBM Informix 14.10?

14.10 has Improvements in Extensibility and IoT!



- ARMv8 support
- Count the number of objects in a given region in a given time range
- *tstamp* distinct type for TimeSeries usability
- Count and find missing readings for a given sensor or meter
- Support for geodetic and projections systems other than WGS 84
- Subsecond GPS readings (1/10 of a second timestamps)

What is IBM Informix 14.10?



Informix remains a great option for the Cloud!

- IBM Cloud continues to be a flexible and preferred option for Informix deployments – now updated with 14.10!
- IBM Cloud Private for Data (ICP4D) add-on Catalog presence (*coming soon!*)
- Informix in Hybrid Cloud

IBM Informix 14.10 in Hybrid Cloud

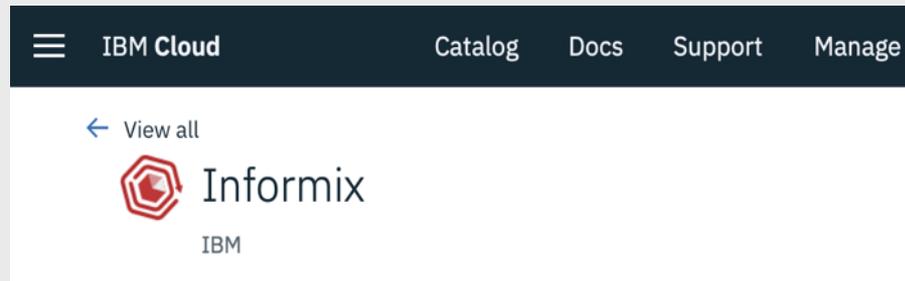


Private Cloud or On-premise Download

- IBM Passport Advantage
- IBM Partnerworld
- IBM Trials and Downloads

Containerization

- Docker Hub
 - ibmcom/informix-developer-database
 - ibmcom/informix-innovator-c



Public Cloud

- IBM Cloud
 - Choose a size – small, med, large, X-large

IBM Informix 14.10 for Developers

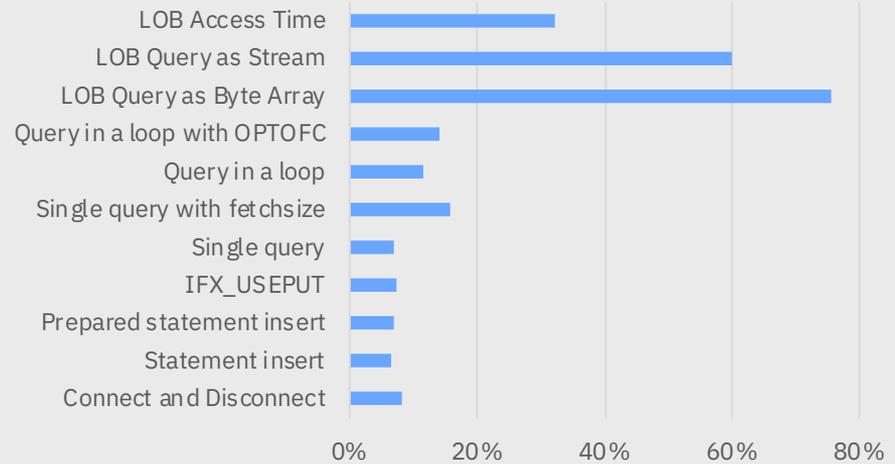


JDBC

- Java 8 – better performance
- JDBC 4.2 compliant – more APIs & flexibility
- Upgraded BSON library – performance and flexibility

ODBC

- Smart triggers support
- Core driver for Python, Node.js, Go, ...
- github.com/openinformix



Docker Hub

- App Dev sandbox

```
docker pull ibmcom/informix-developer-sandbox
```



Thank You