

# The human face of the mainframe

Neil Evans – CTO (EMEA)  
UNICOM Global / Macro 4

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Session **PE**





# THE HUMAN FACE OF THE MAINFRAME

Using emerging technologies to foster greater technical collaboration

NOVEMBER 6, 2018

# This session

**Neil Evans**

**CTO (EMEA) – UNICOM Global / Macro 4**

*Emerging technologies are making the mainframe more accessible and appealing to a new generation. This session will explore how web, mobile, AI, chat bots, machine learning and analytics are being integrated with mainframe systems to help organisations improve user experience, maximize productivity and accelerate skills transfer. The session will also discuss how these technologies can power wider organizational collaboration, with mainframe technicians and other human experts participating in mixed-reality conversations alongside multiple AI-powered virtual assistants to resolve complex, multi-platform problems.*

Topics to include: Web, Mobile, AI, Chat, Machine Learning, Analytics

# Challenges for today's mainframe customers

- Embracing digital transformation and modernization
- Creating consumer-grade user experiences
- Delivering data-driven management insights
- Dealing with mainframe skills shortages
- Encouraging greater inter-departmental collaboration





# MAINFRAME MODERNIZATION

Accelerate modernization and digital transformation

# Mainframe modernization phases



## Access management

- Embrace enterprise mobility
- Reduce operational costs
- Increase application security
- Deliver regulatory compliance

## Application modernization

- Transform user experience
- Increase productivity
- Improve service levels
- Lower barriers to entry

## Operational insight

- Deliver new business insights
- Support data-driven decisions
- Embrace business intelligence
- Move from reactive to proactive

## Cognitive computing

- Accelerate AI-enablement
- Deploy machine learning
- Embrace natural language
- Deliver trusted computing

# Mainframe modernization

Transform user experience and embrace enterprise mobility



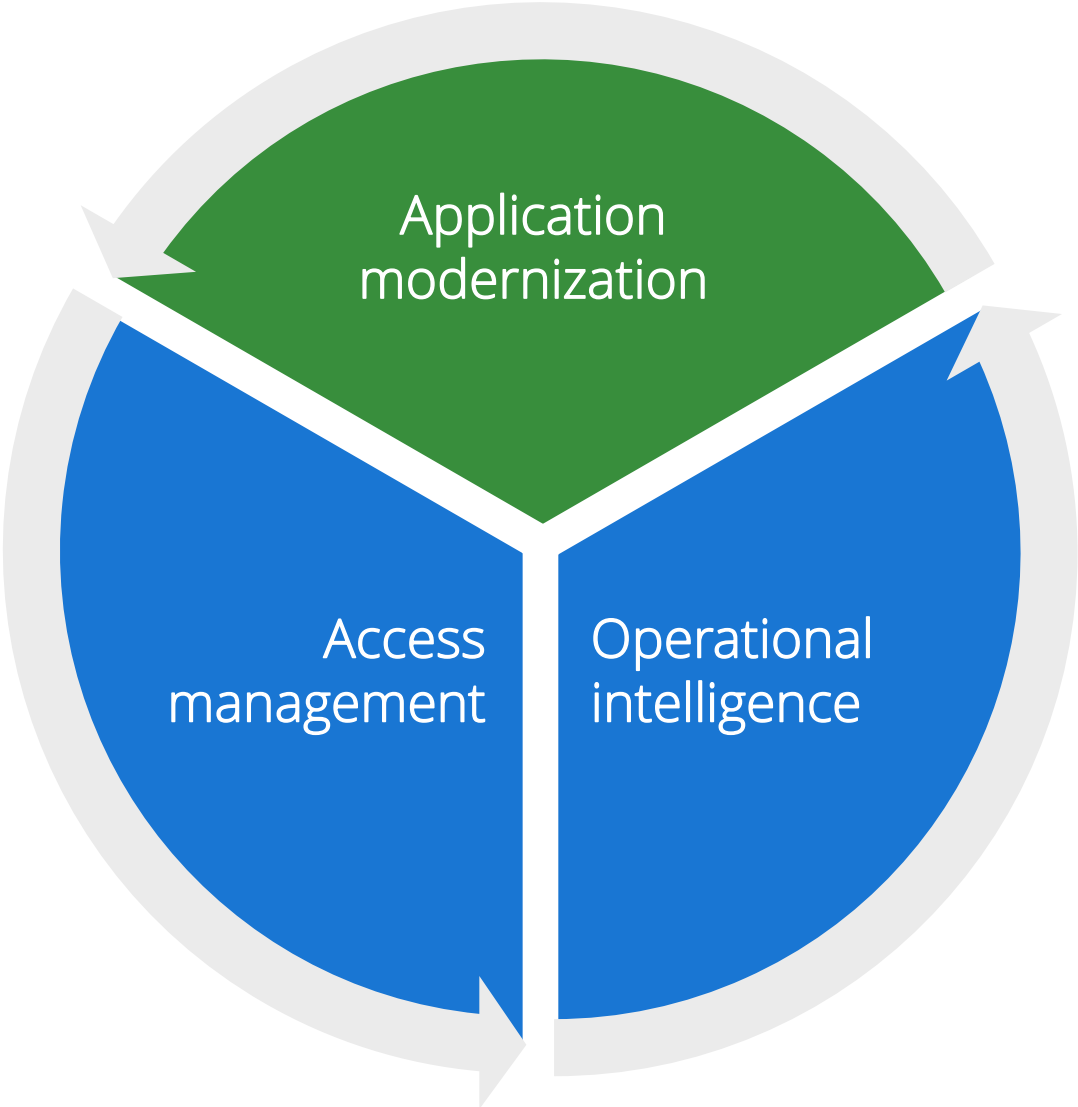
Deliver business insights for data-driven decision making



Increase productivity and improve service levels



Achieve peak performance and reduce operational costs



# Mainframe modernization

Transform user experience and embrace enterprise mobility



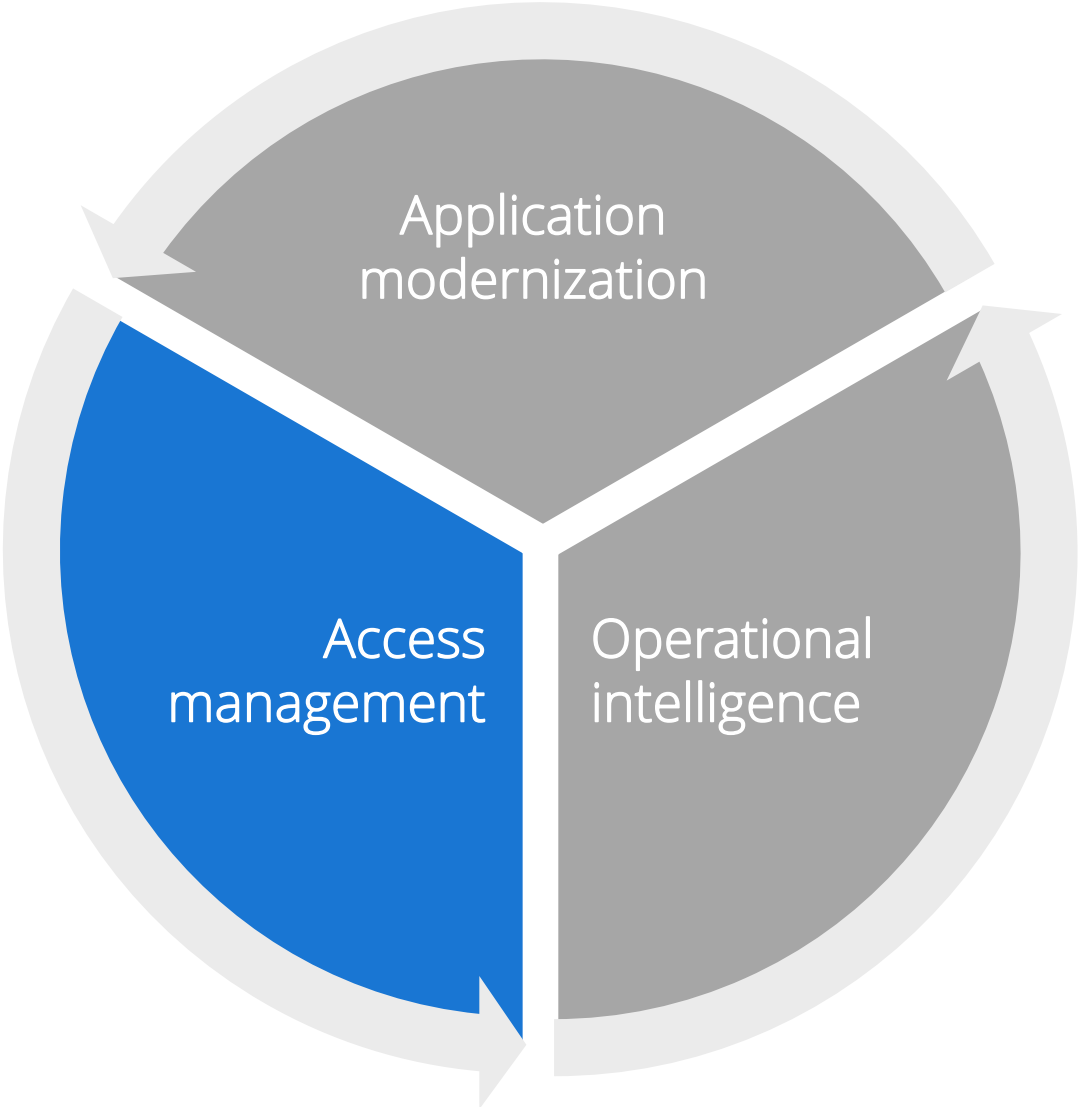
Deliver business insights for data-driven decision making



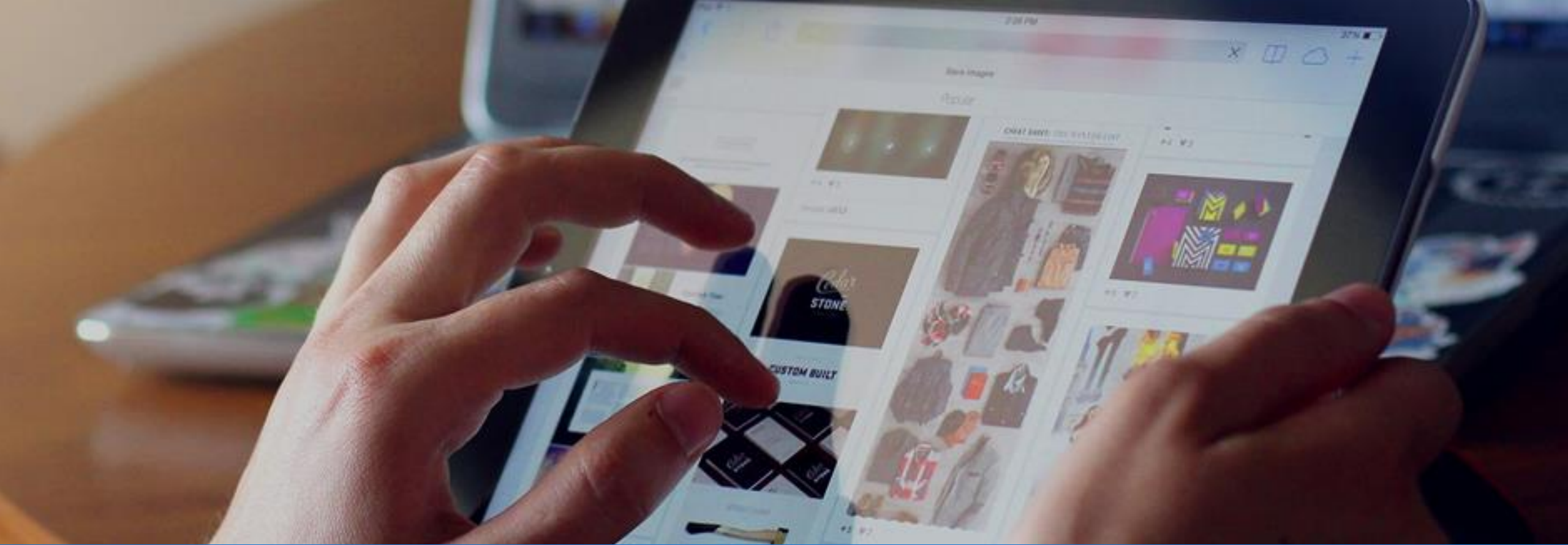
Increase productivity and improve service levels



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# ACCESS MANAGEMENT

Take back control

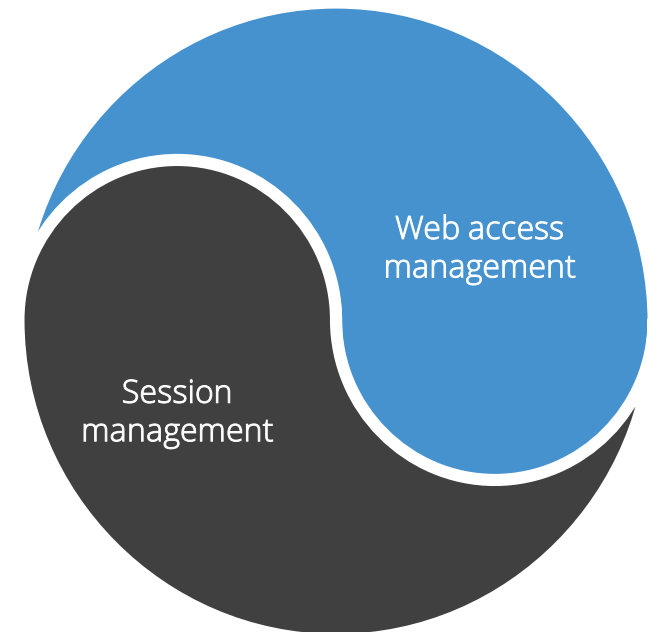
# Access management

“Access management applies to technologies that use access control engines to provide centralized authentication, single sign-on, session management and authorization enforcement for target applications in multiple use cases”

*Gartner*

The access management market has evolved beyond supporting traditional web applications to support mobile applications and APIs, as well as adding contextual and adaptive access features

A good access manager should provide, fast, secure web and mobile access to all of your mission-critical applications from a single user-friendly interface

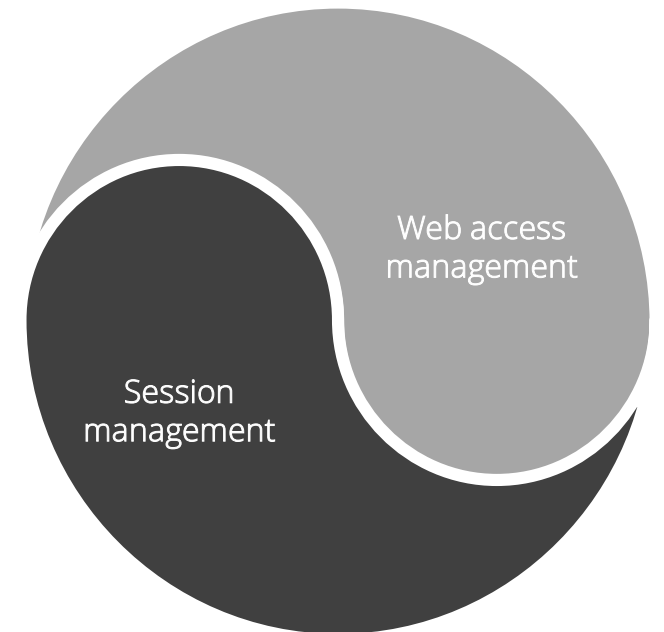


# Session management

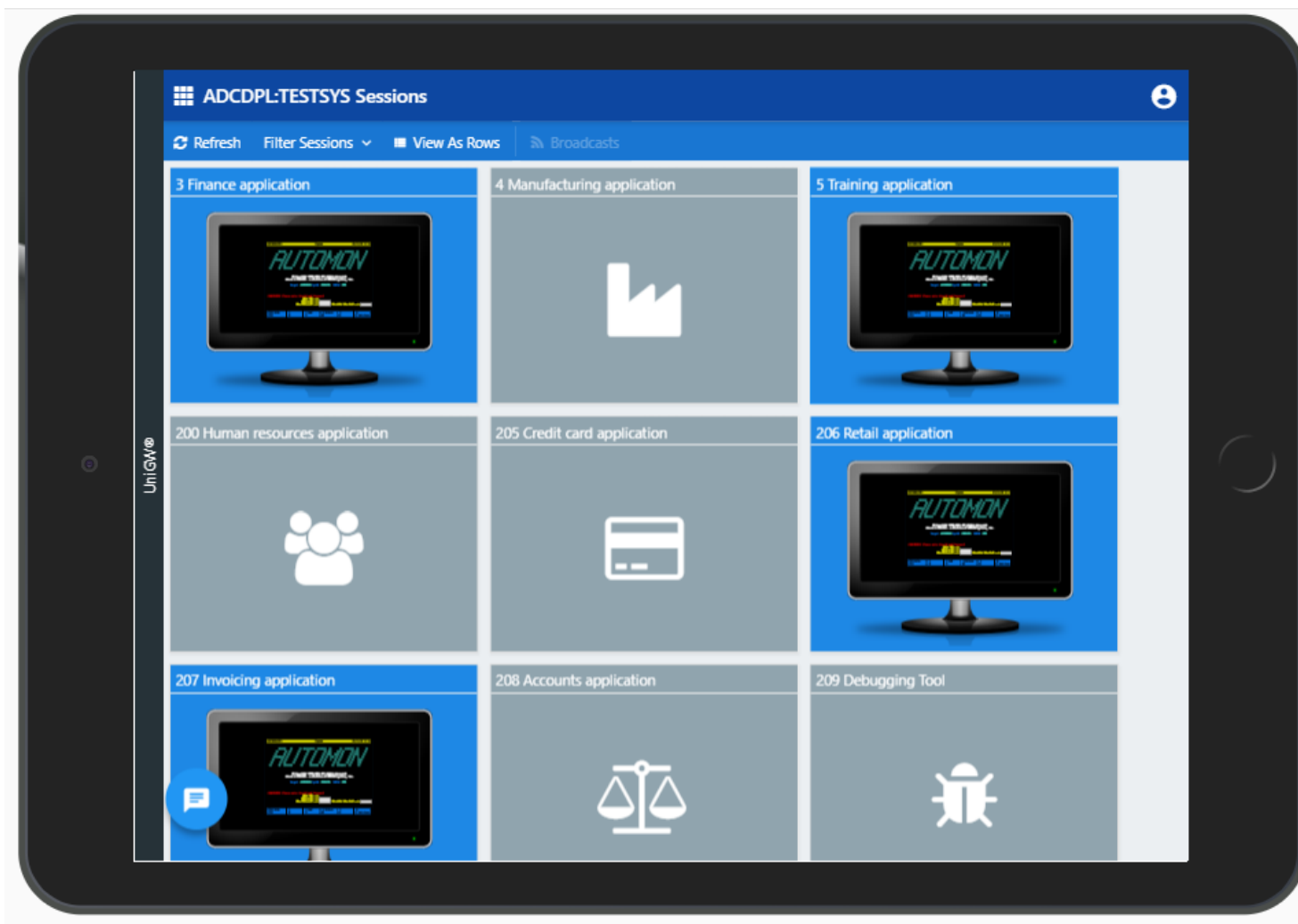
Modern session managers provide fast, secure access to all mainframe applications from a single user-friendly interface

Key capabilities should include:

- ❑ Eclipse, browser, 3270 and 5250 application access
- ❑ Concurrent multi-session support
- ❑ Single sign-on (SSO) and multi-factor authentication (MFA)
- ❑ Comprehensive in-built security and batch administration
- ❑ Dynamic menu creation and Application Builder



# Session management



# Web access management

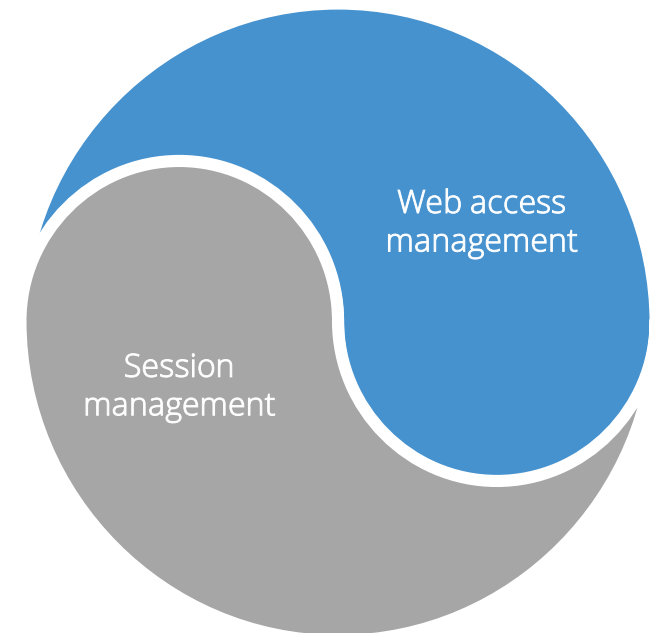
Web access managers provide centralized, secure access to all your web applications from a single user-friendly interface

Key capabilities include:

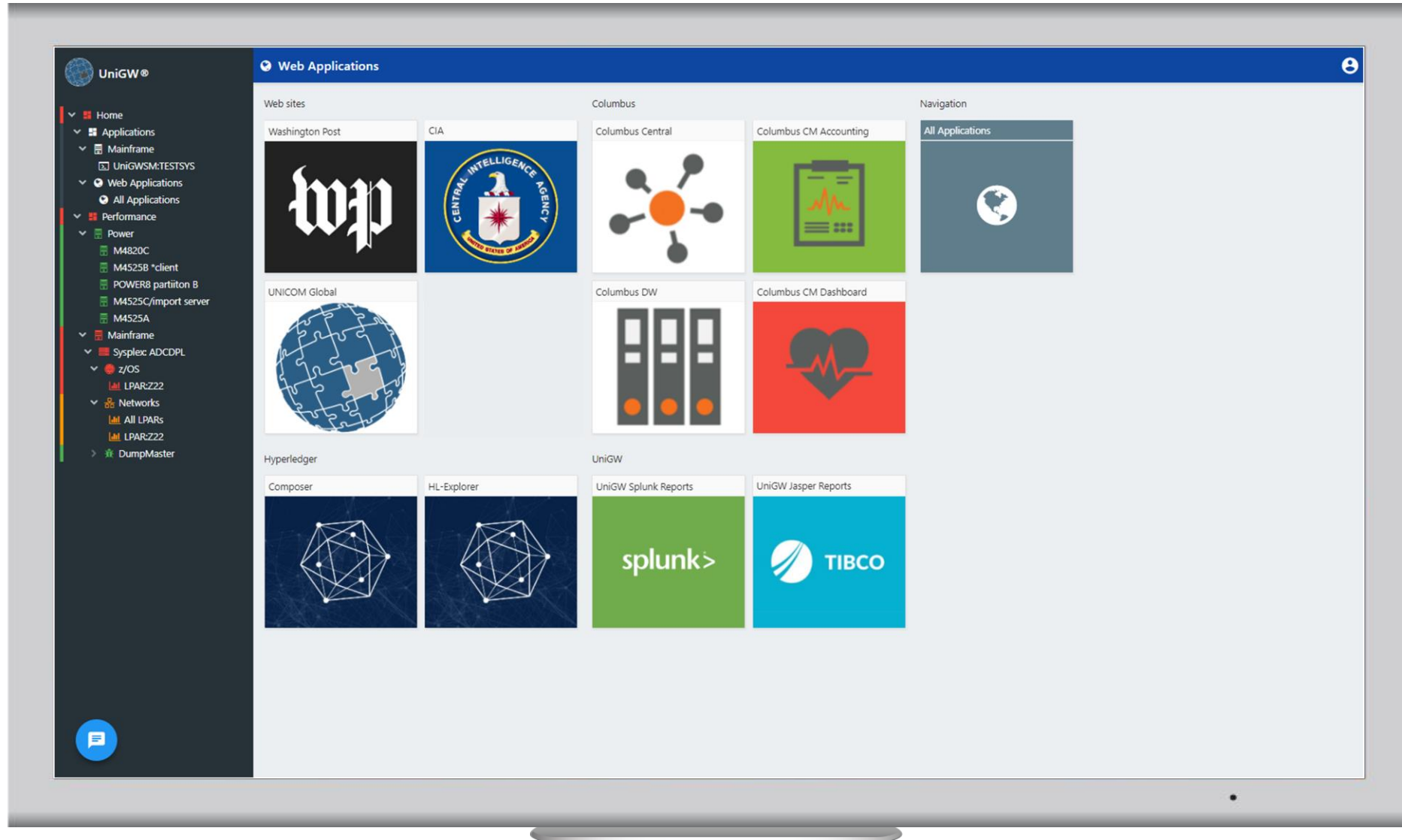
- ❑ Centralized, secure access to intranet and extranet applications
- ❑ Optional reverse proxy to allow selected web traffic to be redirected via the UniGW server
- ❑ Out-of-the box integration with Active Directory, LDAP and RACF
- ❑ Built-in support for single-sign-on and multi-factor authentication

A modern web access manager is:

- ❑ Cross-platform and multi-platform
- ❑ Lightweight, flexible and easy to deploy
- ❑ Optimized for web, mobile and tablet



# Web access management



# Mainframe modernization

Transform user experience and embrace enterprise mobility



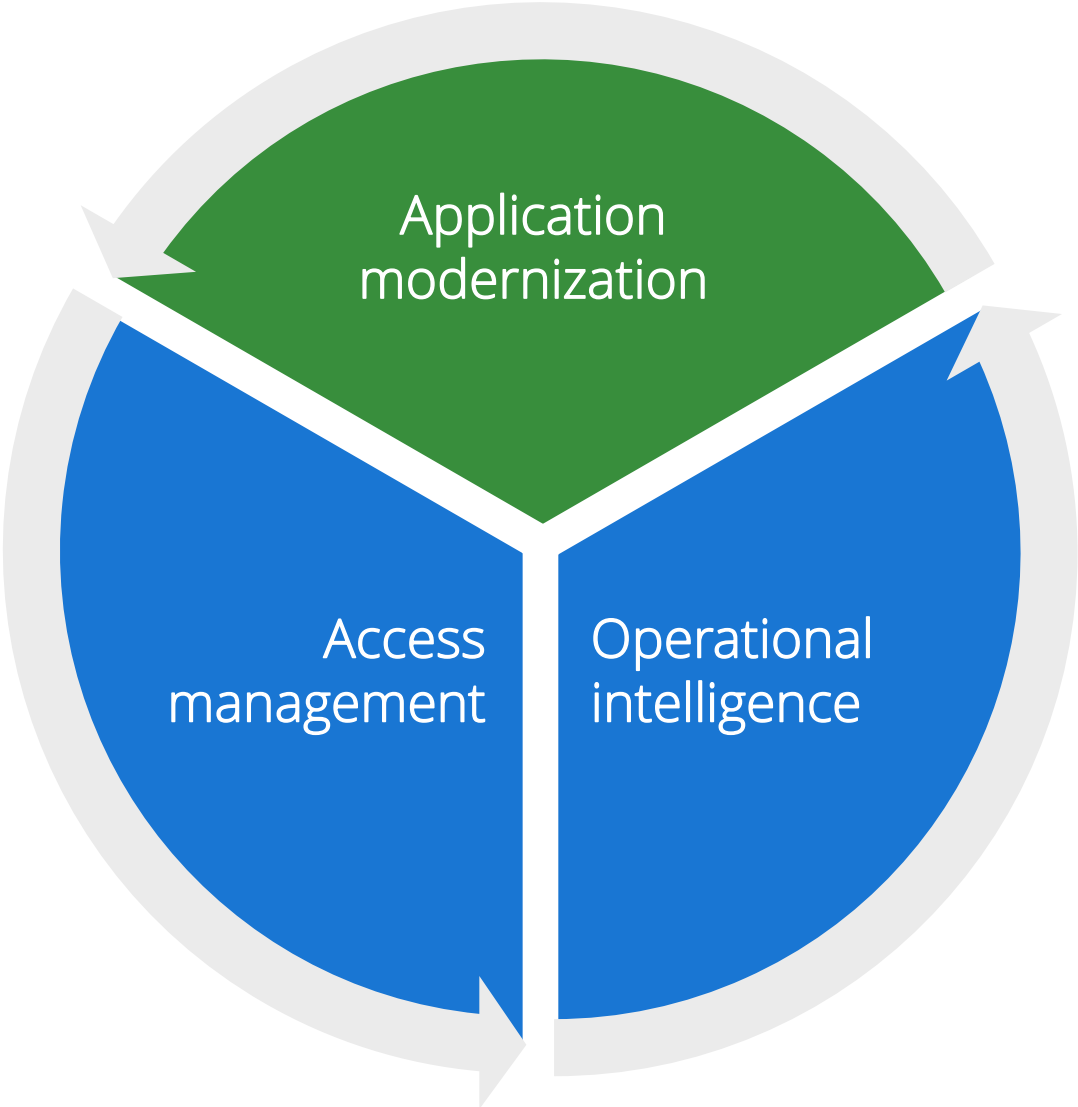
Deliver business insights for data-driven decision making



Increase productivity and improve service levels



Achieve peak performance and reduce operational costs

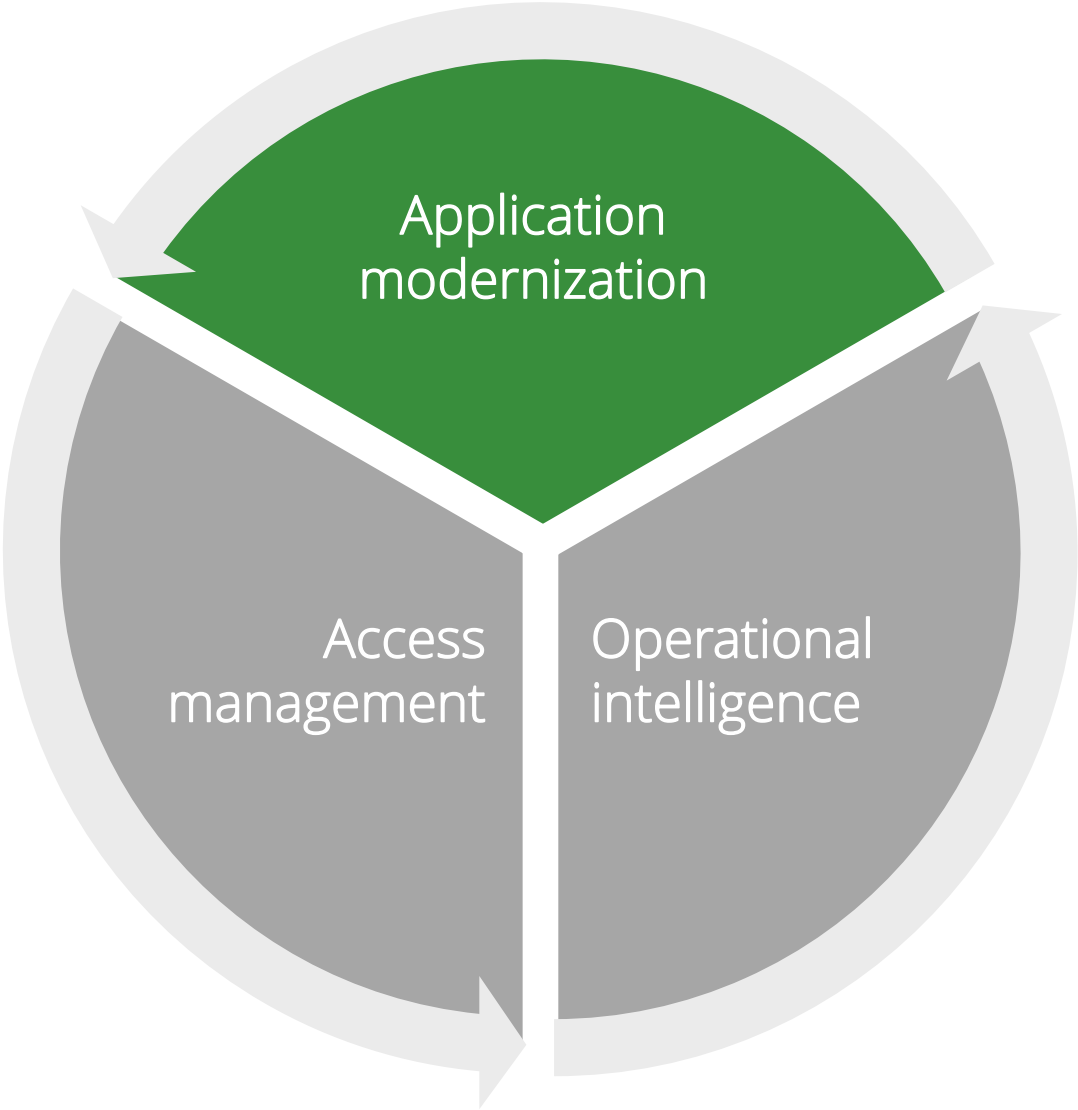


# Mainframe modernization

Transform user experience  
and  
embrace enterprise mobility



Deliver business insights  
for  
data-driven decision making



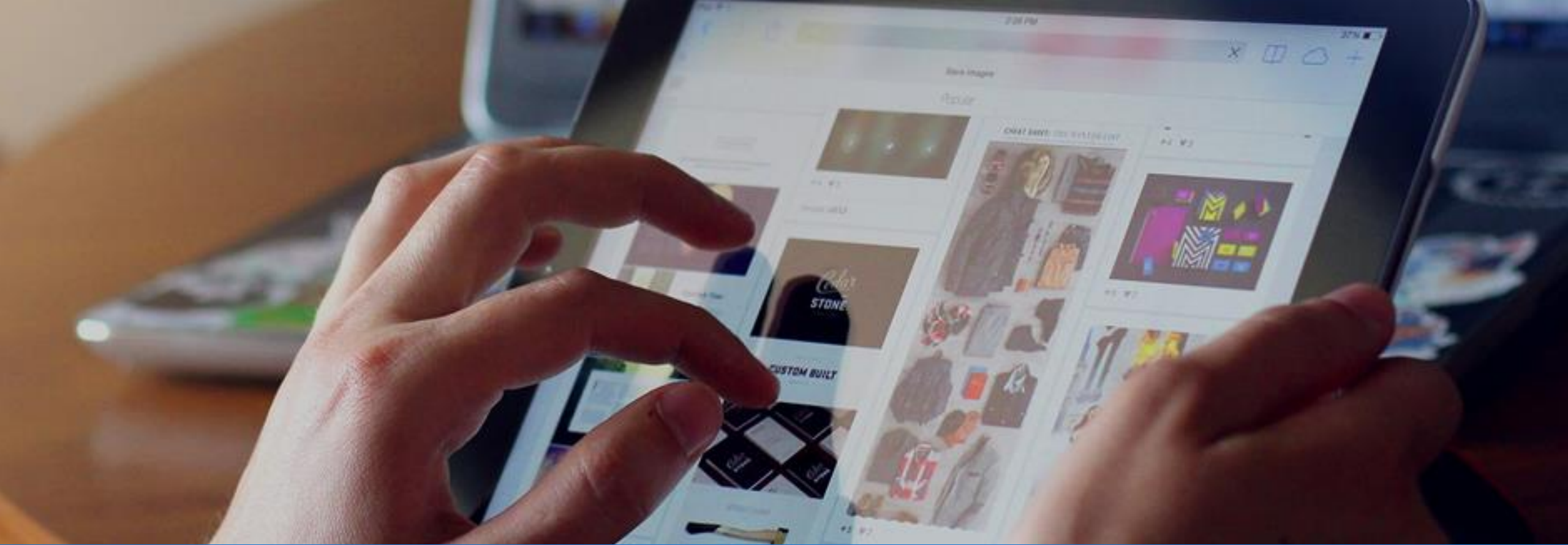
Increase productivity  
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# APPLICATION MODERNIZATION

Transform user experience

# Application modernization

Application modernization tools are the easiest way to transform the capable, back-end logic of your existing 3270 applications into a fully functional web browser based application

Key capabilities should include:

- Adds a new graphical interface to improve the look of your application
- Adds menu systems, dropdowns, and widgets for performing tasks automatically
- Adds functionality such as macros, pop-up calendars and calculators
- Provides a better user experience and increases productivity

If you pick the right tool, you can get results in hours, not months



# Application modernization

The image displays a complex legacy banking application interface titled "Credit Limit Update". The interface is cluttered with multiple overlapping windows and a dense menu system. The main window shows account details for "Mrs 750 1000 200" and "Credit Limit Information" with a limit of 20,000.00. A menu is open, listing various options such as "Account Inquiry", "Account Management", and "Transactions". A calendar widget is visible, showing the date "January 2005".

Overlaid on the left side of the main interface are several smaller, semi-transparent windows, each displaying a different type of account inquiry or statement, such as "ACCOUNT INQUIRY" and "ACCOUNT STATEMENT".

On the right side, a mobile device (smartphone) displays a modernized version of the application. The mobile interface is clean and user-friendly, featuring a top navigation bar with "Management", "Configuration", and "Security" options. Below this, there are sections for "User Management" and "Profile" with various links and settings. At the bottom, there are two circular progress indicators showing "0%" and "100%".

# Mainframe modernization

Transform user experience and embrace enterprise mobility



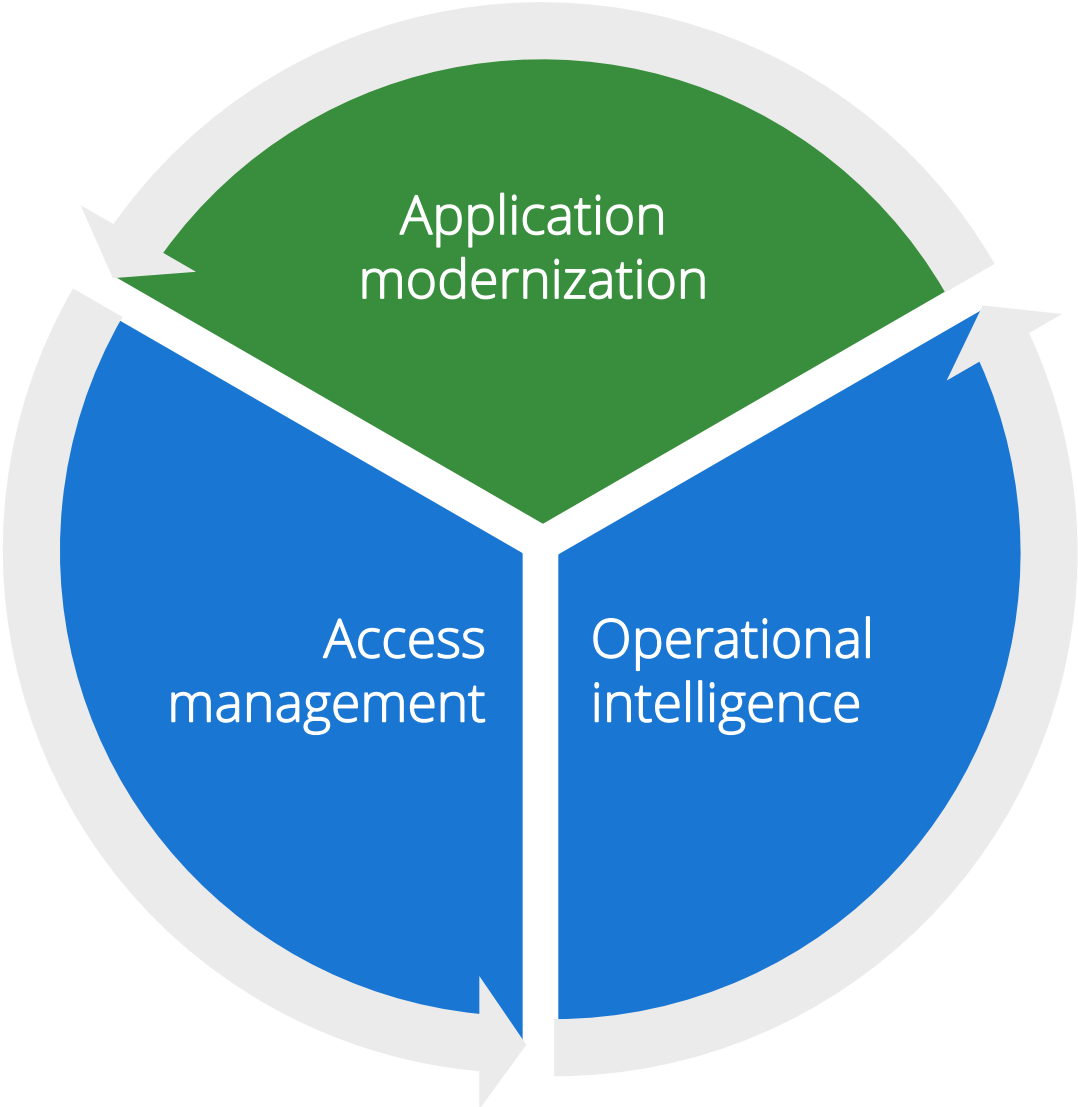
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# Mainframe modernization

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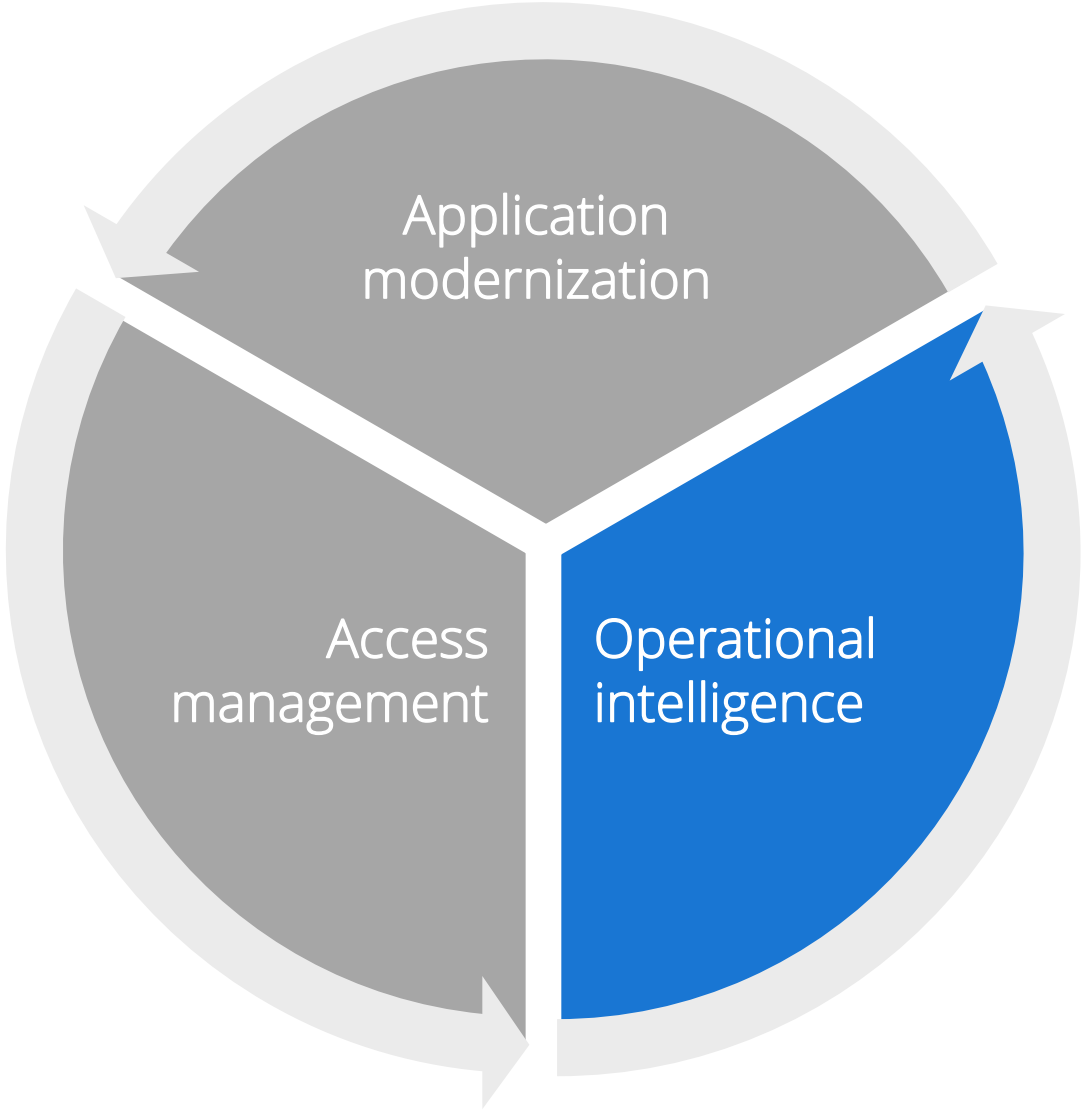
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Increase productivity and improve service levels



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# OPERATIONAL INTELLIGENCE

Effective decision-making based on accurate management information

# Operational Intelligence

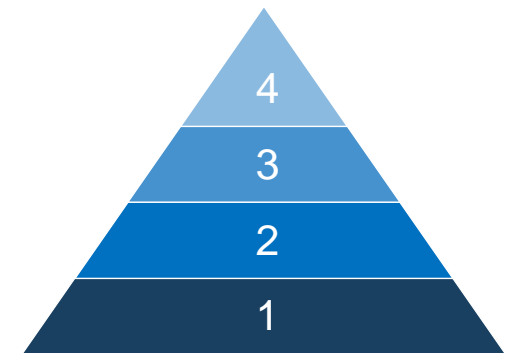
“Operational intelligence is a category of real-time dynamic, business analytics that delivers visibility and insight into data, streaming events and business operations”

*Wikipedia*

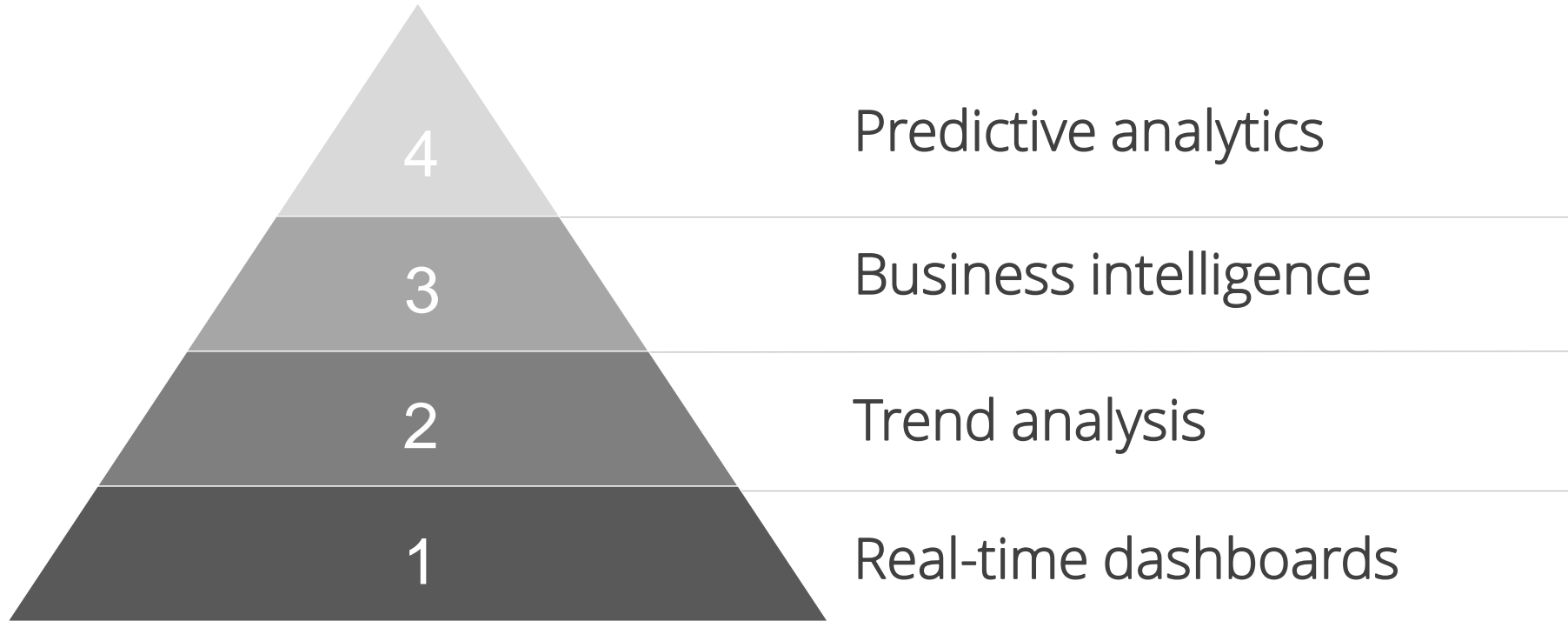
Effective decision-making relies on accurate management information. Technology should allow you to monitor every aspect of your organization’s digital processes

This information should be used to identify where you can save costs and drive continuous service improvement

Organizations need the ability to make decisions and immediately act on business insights, through manual or automated actions

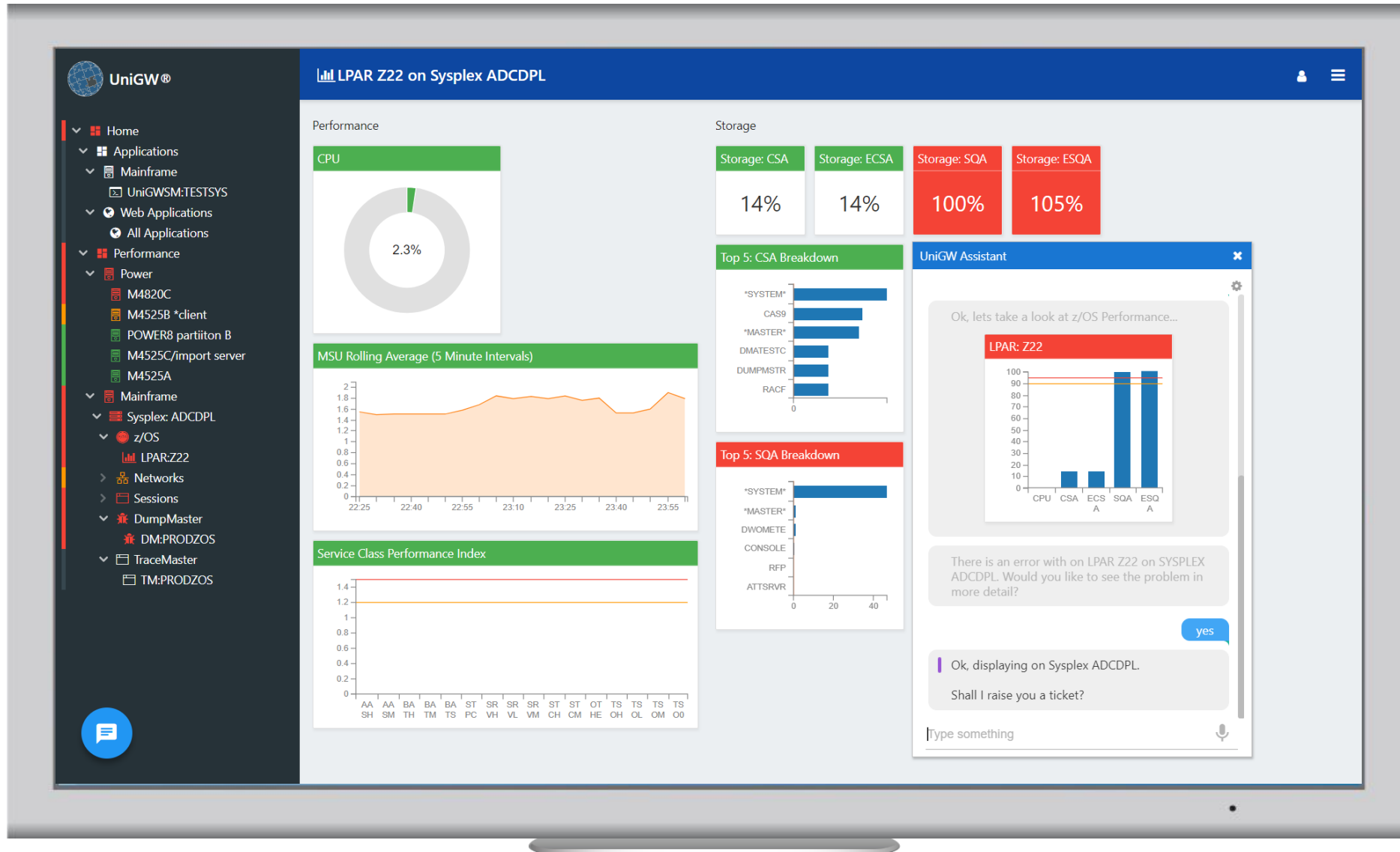


# Operational Intelligence

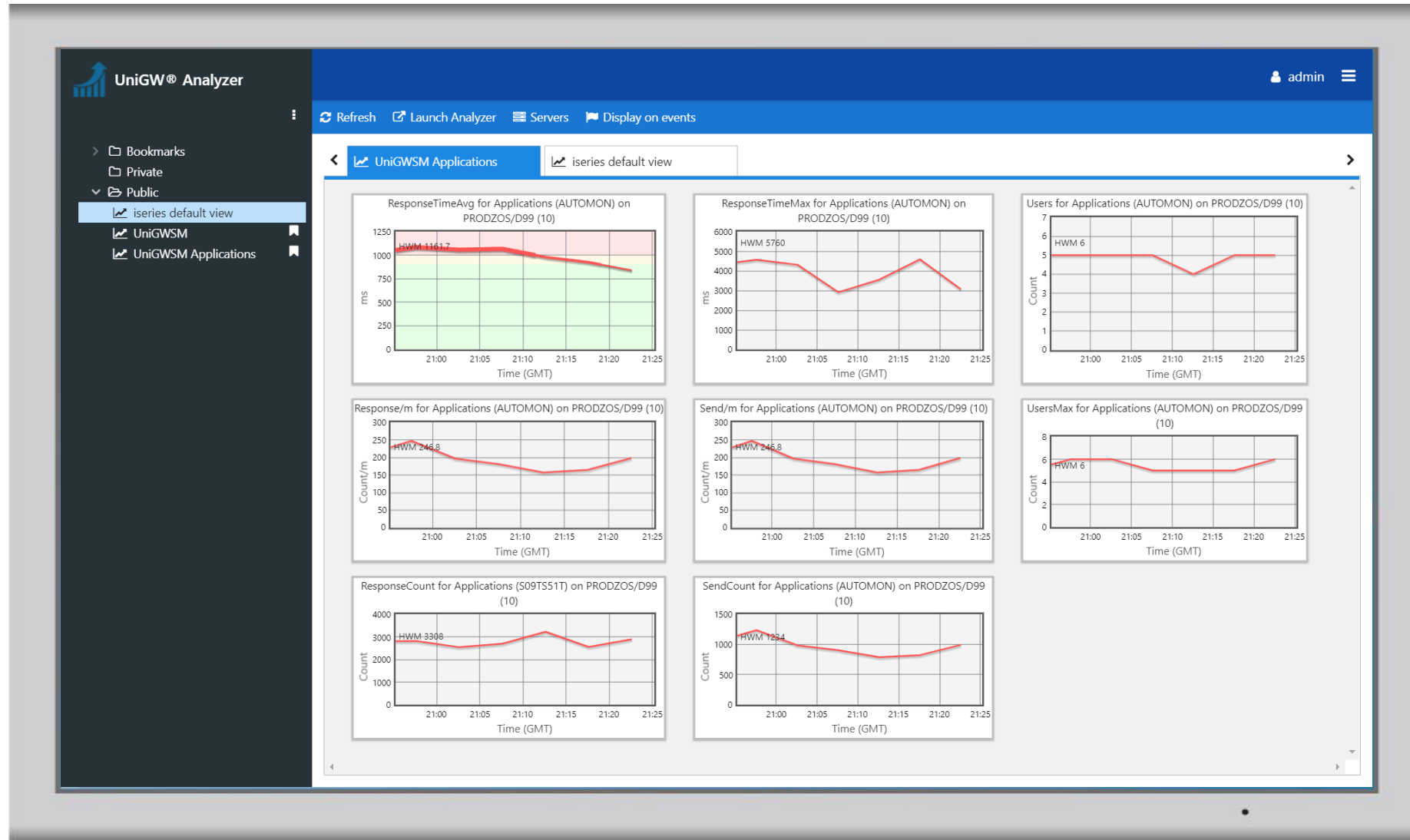




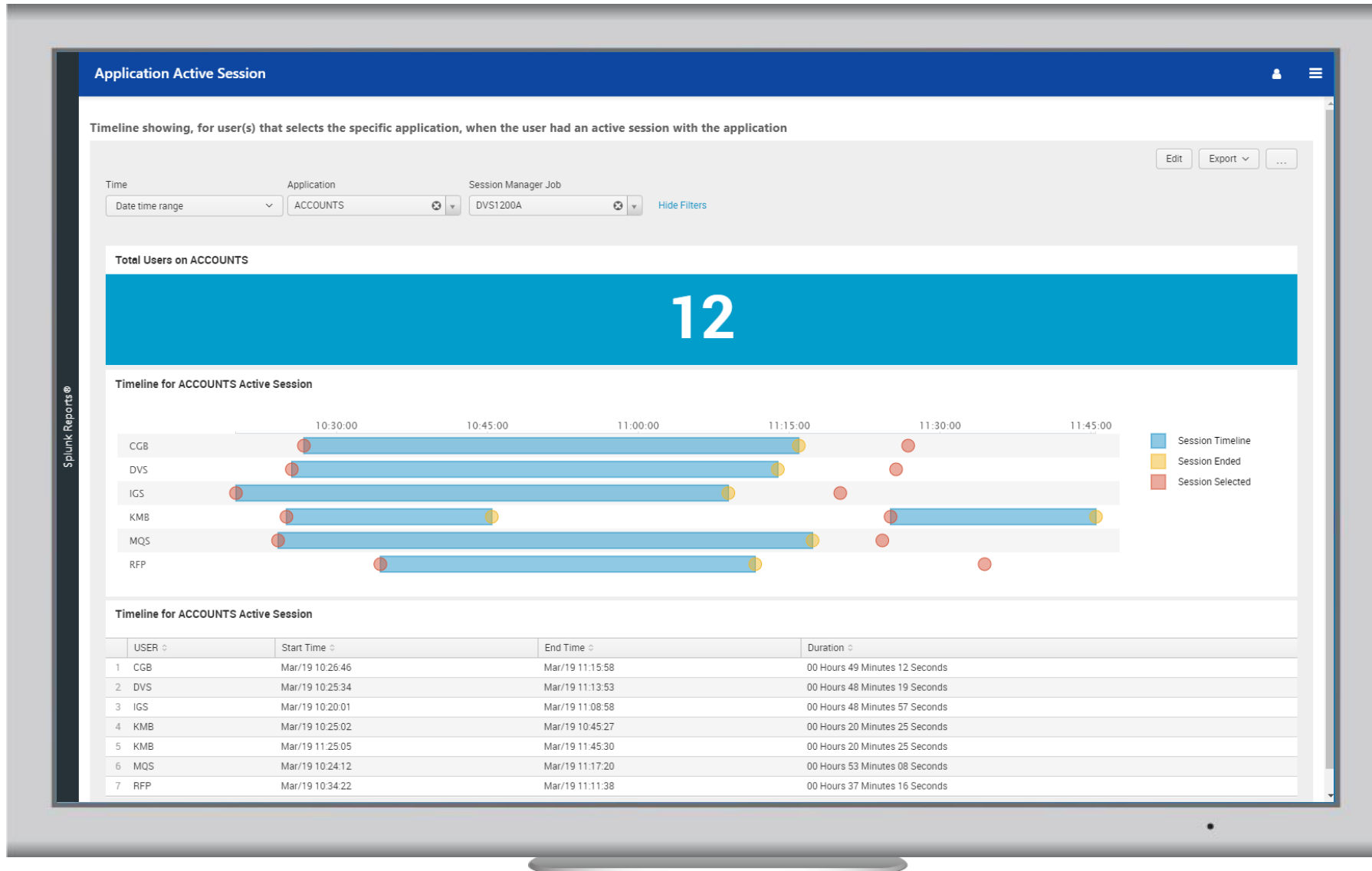
# Tier 1 - Real-time dashboards



# Tier 2 – Trend analysis

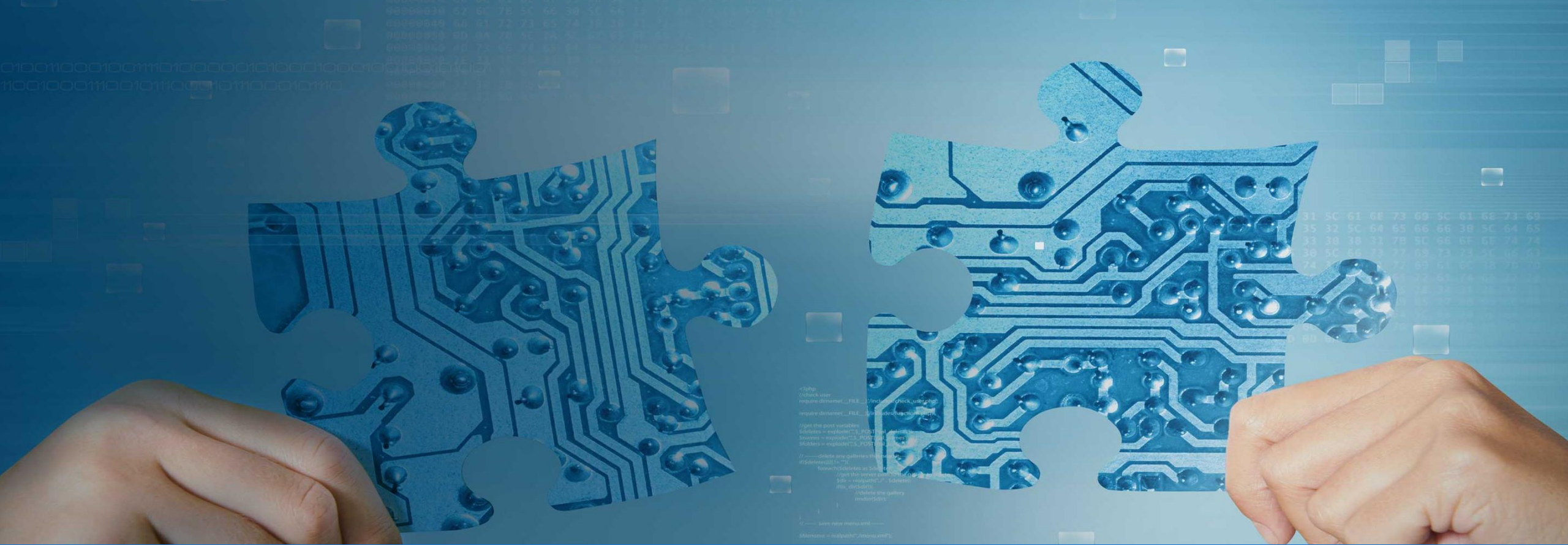


# Tier 3 - Business intelligence



# Tier 4 - Predictive analytics

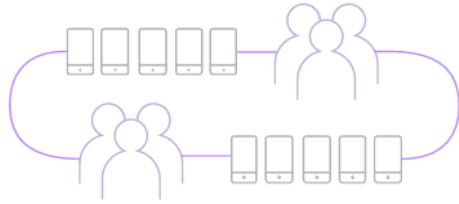




# EMERGING TECHNOLOGIES

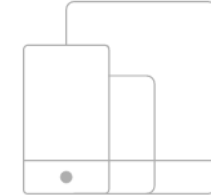
Foster greater technical collaboration and accelerate digital transformation

# Data is part of our everyday lives...



**7.8 billion+**

estimated smartphone users globally by 2020, overtaking landline phone subscriptions\*



**50 billion+**

estimated smart connected devices in the world by 2021\*



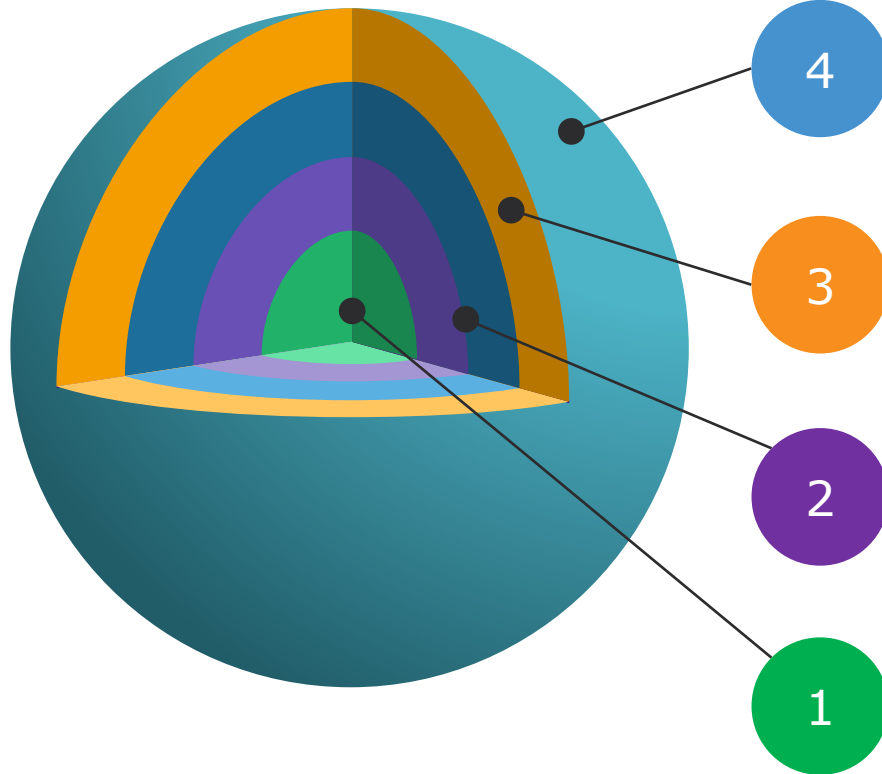
**3.5 billion/day**  
**40,000/sec**

Google search queries\*\*

\* Ericsson mobility report - June 2017

\*\* Google search statistics

# The mainframe plays a vital role..



4

91 percent  
of CIOs said apps are  
accessing the mainframe  
[Data Centre Dynamics]

3

80 percent  
of the world's corporate data  
[Share]

2

\$6 trillion  
in card payments annually  
[IBM]

1

30 billion  
business transactions per day  
[IBM]



# How can emerging technologies help?

IBM are investing in the following emerging technologies:

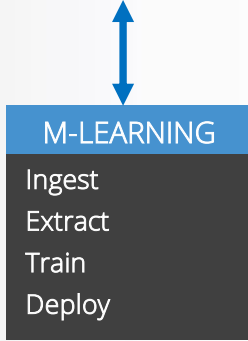
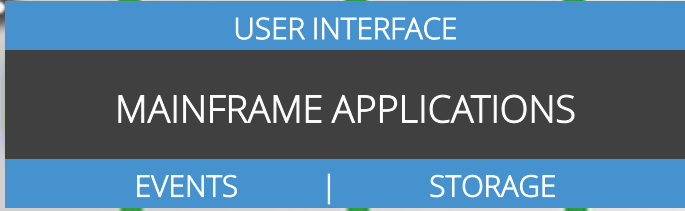
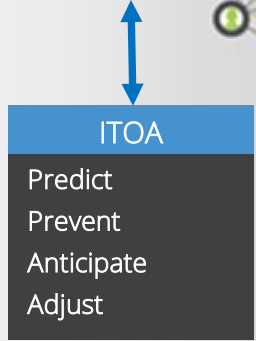
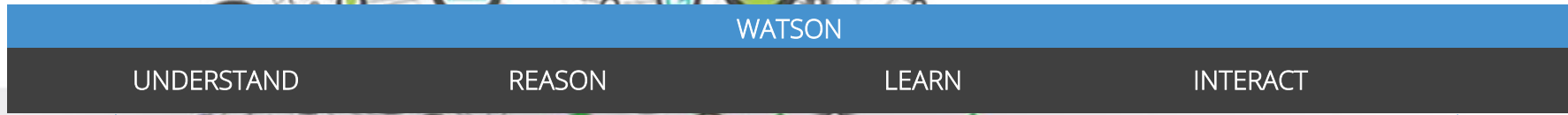
- Cognitive Computing (IBM Watson)
- Apache Spark (IBM Machine Learning)
- Splunk (IBM IT Operational Analytics)
- Apache Hyperledger (IBM Blockchain)

All of these technologies have a strong story on the mainframe (in addition to being cross platform)

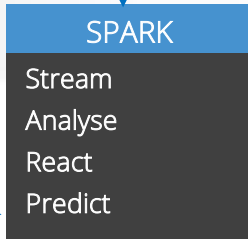


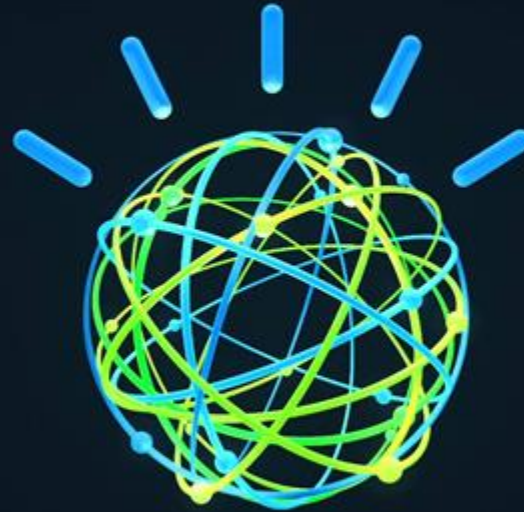


# INTERNET OF THINGS



## INFRASTRUCTURE MONITORING





# IBM WATSON

Build your cognitive business

# IBM Watson

“IBM Watson is a technology platform that uses natural language processing and machine learning to reveal insights from large amounts of unstructured data”

*IBM*

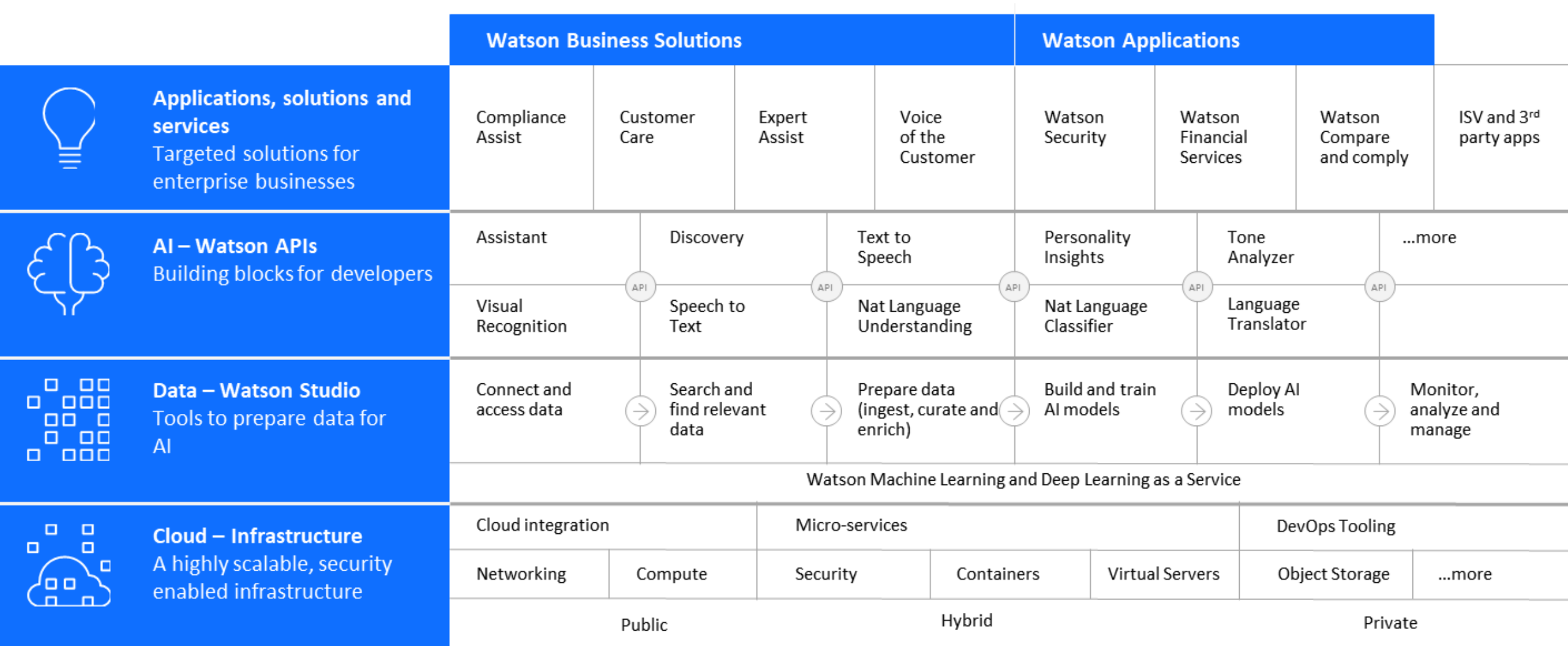
Watson can deliver the following (assuming it has access to qualified data):

- ❑ Answer your customers' most pressing questions
- ❑ Quickly extract key information from all documents
- ❑ Reveal insights, patterns and relationships across data

Watson analyzes unstructured data. Today, over 80% of all data is unstructured. This includes articles, research reports, social media posts and enterprise system data



# The Watson API ecosystem



# Assistant

- Add a natural language interface to your application to automate interactions with your end users
- Chat bots, virtual agents etc.
- Train using web tool to define intents, entities, and dialog
- Pre-built intents/entities for customer service and industry specific use cases



# Natural Language Understanding

- NLU for Advanced Text Analytics
- Extracts meta-data from content including concepts, entities, keywords, categories, sentiment, emotion, relations and semantic roles

## Example:

- Taxonomy (horticulture)
- Concepts (farming)
- Keywords (tomatoes)
- Entities (Best-Gro Seed Company)
- Relationships (Best-gro, acquisitions, private farms)
- Options for customization to specific industries and domains. Train using Watson Knowledge Studio. SMEs do not require NLP expertise



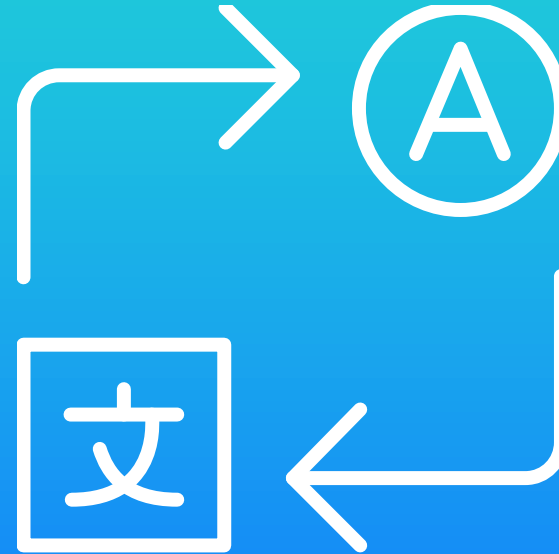
# Discovery

- Identifying useful patterns and insights in structured or unstructured data
- APIs and tools to build a pipeline for ingesting, storing and enriching data – less **data janitor** work
- Ingest, Normalize, Enrich, Query, Analyze
- Compare & Comply Element Classification  
Enrichment for legal documents
- Query metadata across all your documents, IBM provided sources (e.g. News), and external sources via an API
- Rank most relevant documents



# Language Translator

- Translate documents from one language to another (supports 16 languages)
- Language identification (supports 62 languages)
- Some languages uses Neural Machine Translation, since Q12018
- Support specific domains for News, Patents or Conversations





# Text to Speech

- Processes natural language text to generate synthesized audio
- TTS customization API (BETA)

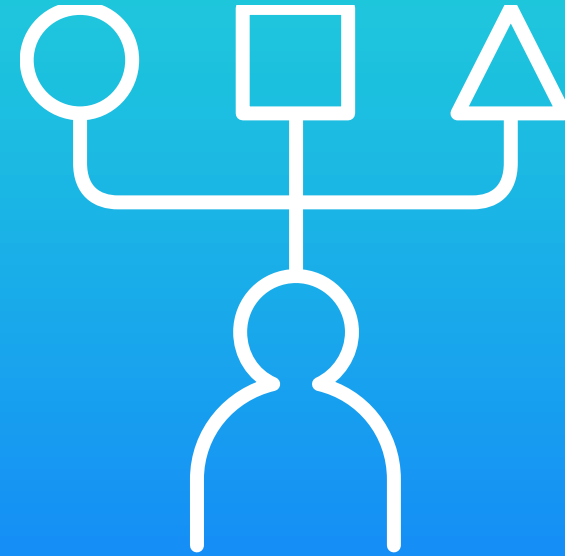
# Speech to Text

- Converts the human voice into the written word
- Works in real time, provides meta data
- Keyword Spotting
- Speaker Diarization
- Add training data for domain specific words



# Personality Insights

- Creates a personality profile based on text
- Analyses:
- **Big five** personality dimensions (agreeableness, conscientiousness, extraversion, emotional range, cooperation)
  - Needs (excitement, harmony, stability, challenge)
  - Values (helping others, hedonism, open to change etc.)
  - Determine purchase decisions, intent and behavioral traits
  - Is this a good candidate for the job? Should I offer a promotion on product X?



# Tone Analyzer

- Uses linguistic analysis to detect three tones from text:
- Emotion (joy, sadness, fear etc.)
- Language style (analytical, confident, tentative)
- Social Tendencies (openness, extraversion, agreeableness etc.)
- Refine and improve communications – If I respond to a customer query like this, how will I be perceived?



# Visual Recognition

- Analyze images for scenes, objects, faces, colors and other content
- Available models: general, face, food (beta), explicit (beta), text (beta)
- Custom classifiers





# WATSON BUILD 2018

Think. Build. Showcase

# Watson Build 2018

We have been working with the IBM Watson team, in order to allow our customers to rapidly 'Watson enable' their core enterprise applications

In order achieve this goal, we are developing a 'digital assistant', which will integrate mainframe applications with IBM Watson. This is designed to help mainframe customers explore complex information and business systems, via an intuitive 'human' interface - whist also fostering greater collaboration.

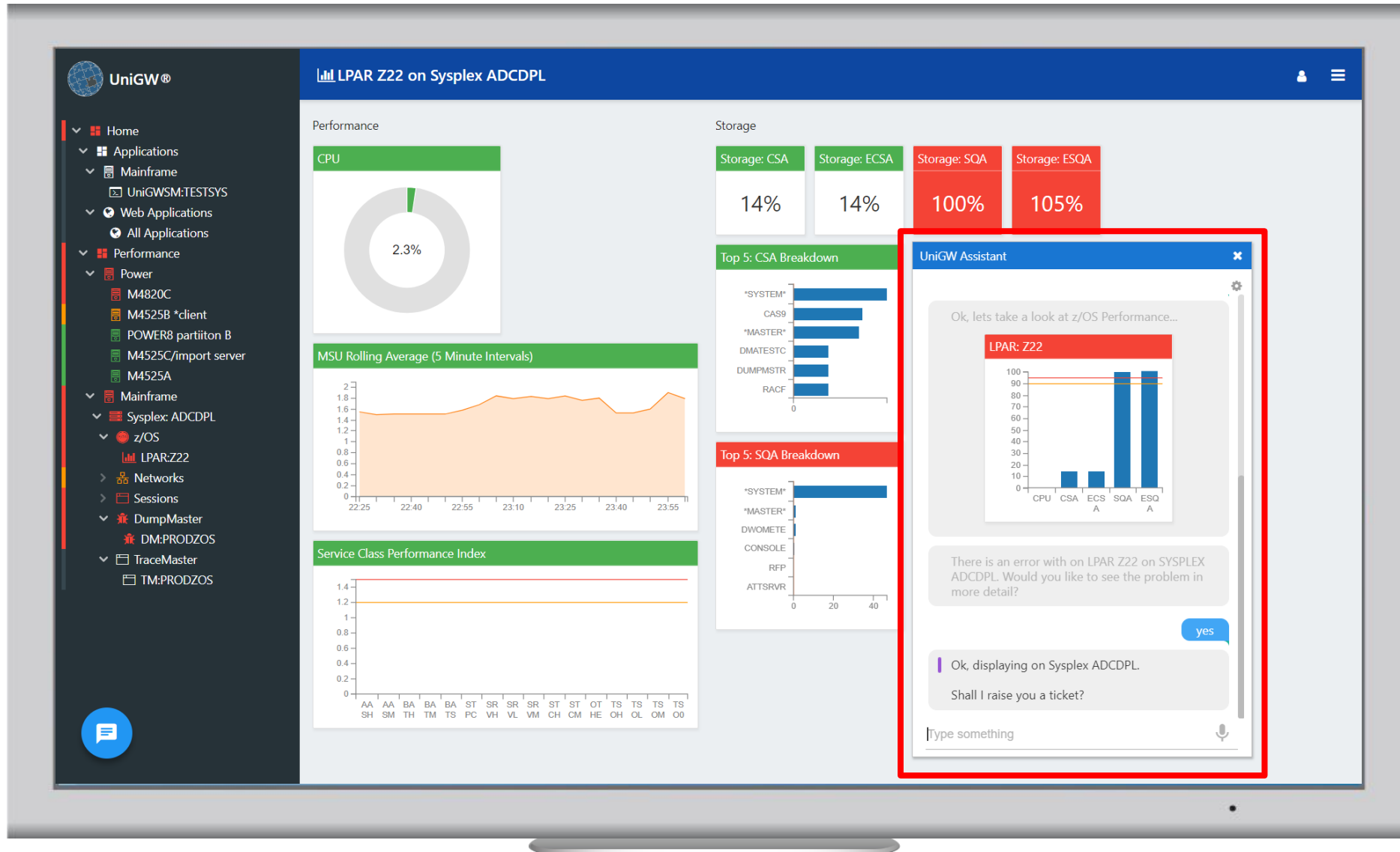
Our current focus is on the following Watson APIs:

- ❑ Watson Assistant ('Chat' – an intuitive, conversational interface )
- ❑ Watson Tone Analyser ('Sentiment' - assess understanding and anticipate frustration)
- ❑ Watson Discovery ('Advice' - surface of relevant content to assist)

Other Watson services will be integrated over time



# Watson Build 2018



# How can emerging technologies help?

- Embracing digital transformation and modernization ✓
- Creating consumer-grade user experiences ✓
- Delivering data-driven management insights ✓
- Dealing with mainframe skills shortages ✓
- Encouraging greater inter-departmental collaboration ✓







THANK YOU

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# We want your feedback!

- Please submit your feedback online at ....
  - <http://conferences.gse.org.uk/2018/feedback/nn>
- Paper feedback forms are also available from the Chair person
- This session is **PE**

