

InterConnect 2016

The Premier Cloud & Mobile Conference

Playing back the Watson IoT Platform design

Session IDA-5360

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Abstract

The **IBM Watson Internet of Things Platform** delivers capabilities to create new value and new ways of working that brings together people, process and now things.

In the first part of this session, we will introduce the **IBM Design Thinking** methodology and the platform personas and use cases explored in the IoT design.

We will frame the discussion around our design objectives, also know as Hills, and **play back the user experiences design** using the IBM IoT Platform on Bluemix

Agenda

- Introduction
 - Who are you?
 - What is IBM Design Thinking?
 - What is the Watson Internet of Things Platform?
- IoT Platform Hill – Discover, play and try
- IoT Platform Hill – Provide a integrated platform
- Summary and Conclusions
- Information on Design Partner Program and Design Sponsor Users

Introductions

- Your organization
- Your industry
- Your role
- Your mission with Internet of Things



IBM Design Thinking

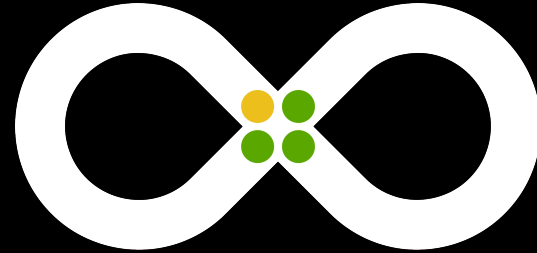
Human-centered outcomes at speed and scale

**Design is the intent
behind an outcome.**

Principles

The Loop

The Keys

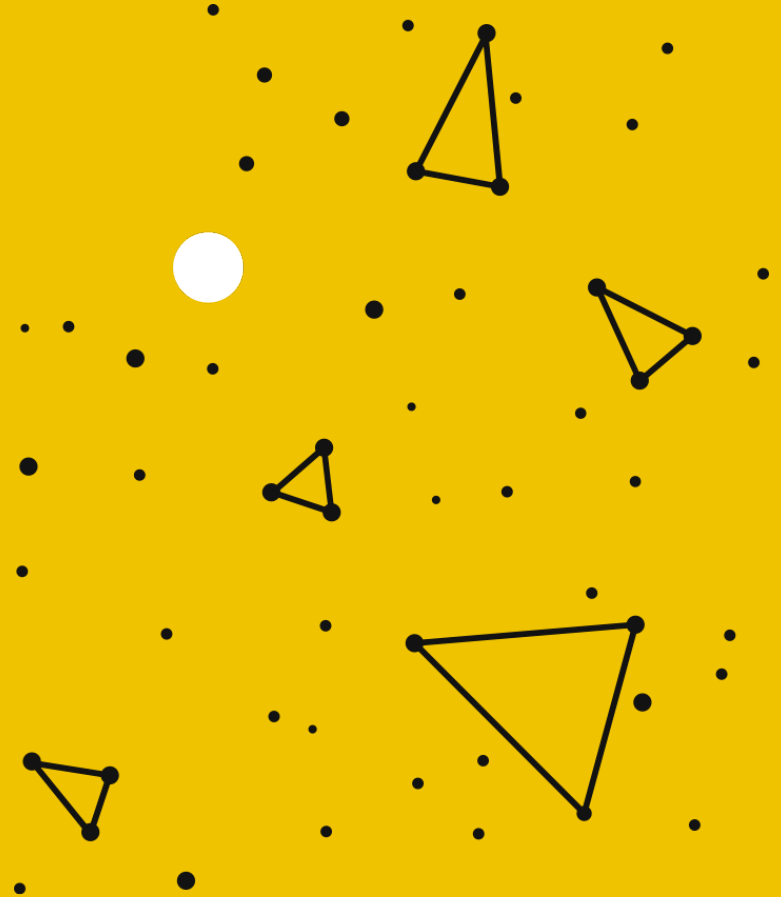


Principles

Make users your North Star

They are the premise for every action we take

Measure success based on the value that we bring to them



The Loop



Observe >

Get to know users,
uncover the needs,
test ideas

Reflect >

Build understanding,
for intent

Make >

Explore ideas,
prototype possibilities,
drive outcomes

The Keys

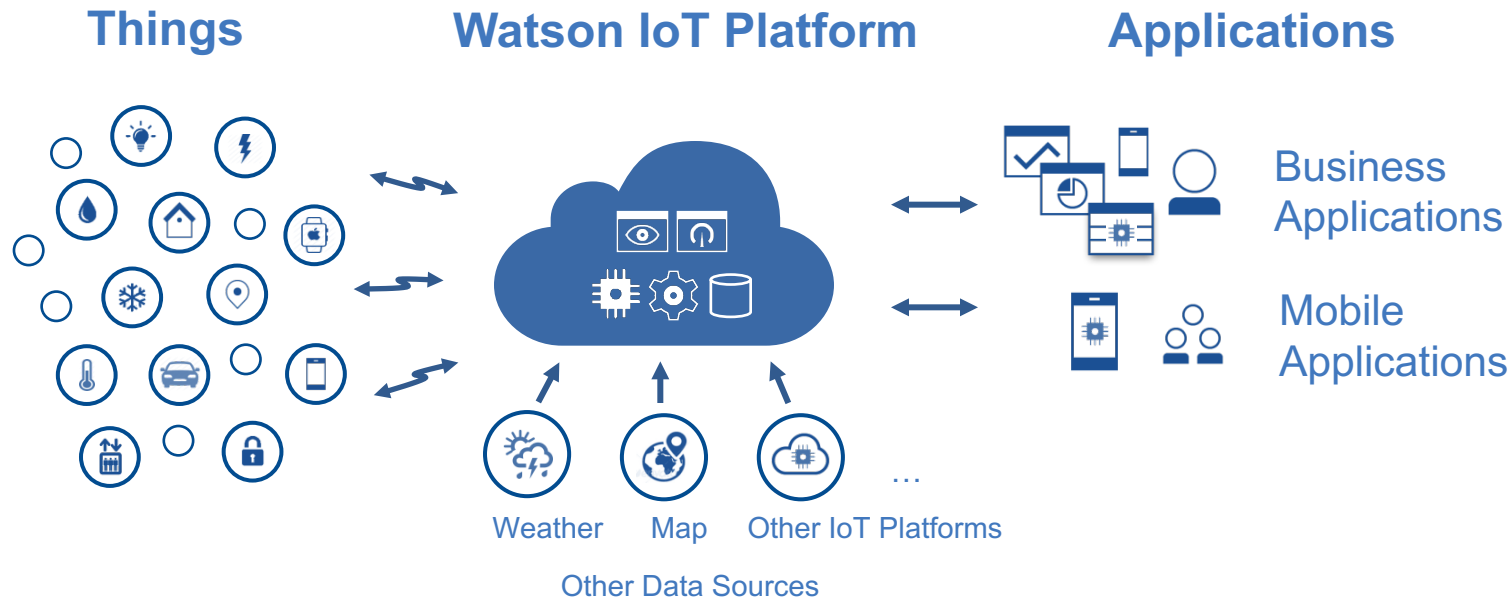


Hills > Align
around a common
understanding of
the most important
user outcomes
Who, What, Wow

Playbacks > Bring
stakeholders into
the loop and reflect
on the work

Sponsor Users >
Collaborate with
real users to close
the gap between
your assumptions
and your users'
reality

What is the Watson IoT Platform?



What is the Watson IoT Platform?

IBM Watson IoT Platform

Connect

Attach, Collect & Organize, Device Management, Secure Connectivity, Visualization

Information Management

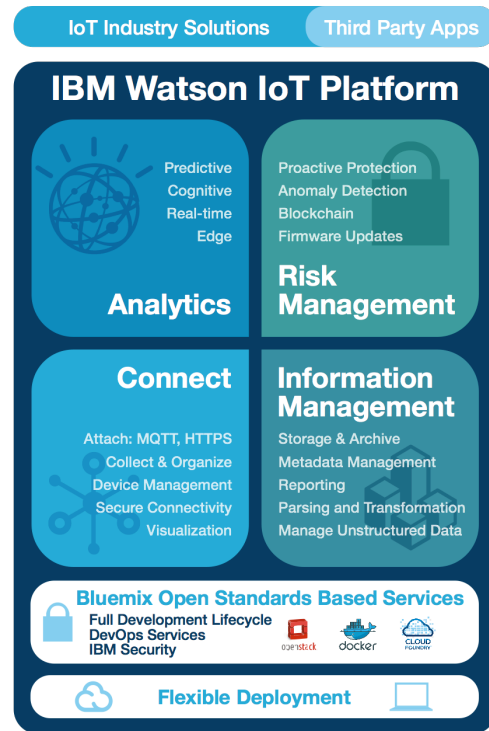
Storage & Archive, Metadata Management, Reporting, Streaming data, Parsing and Transformation, Manage unstructured data

Analytics

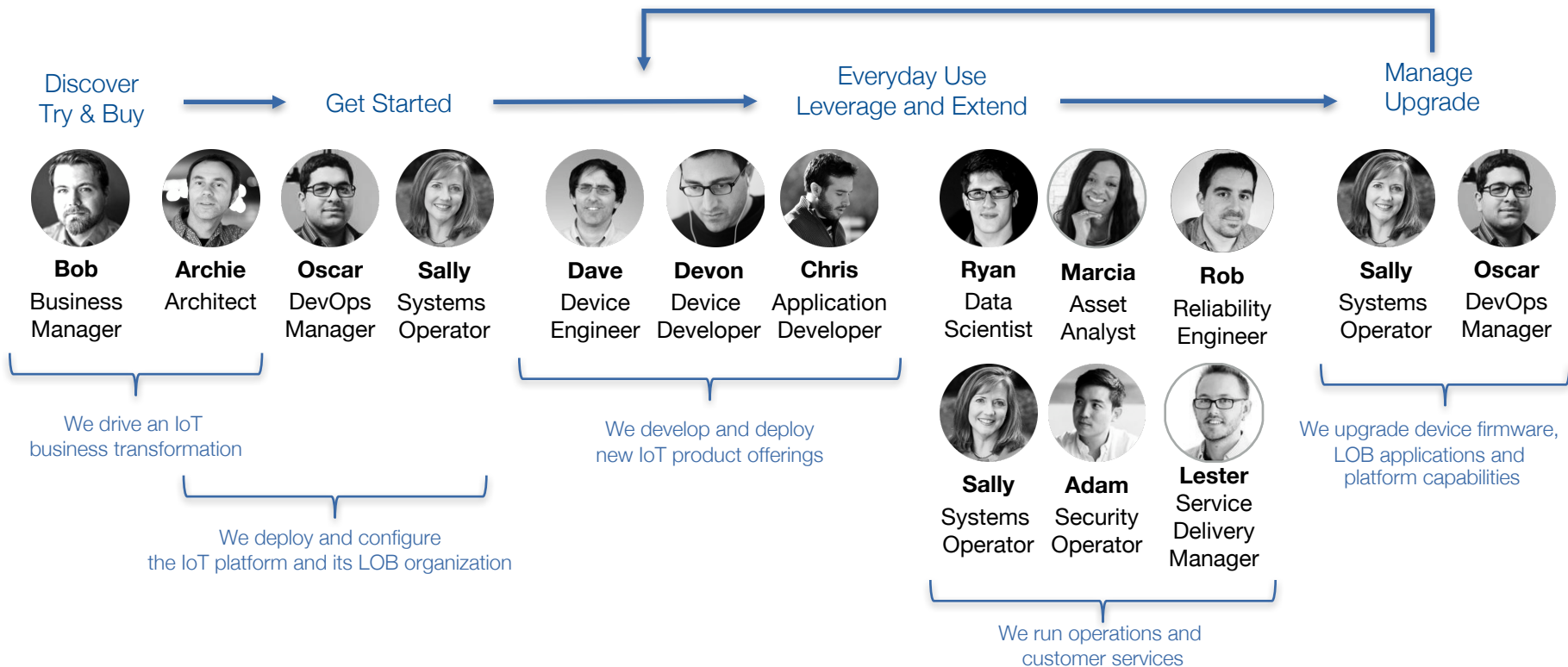
Predictive, Cognitive, Real-time, and Contextual

Risk Management

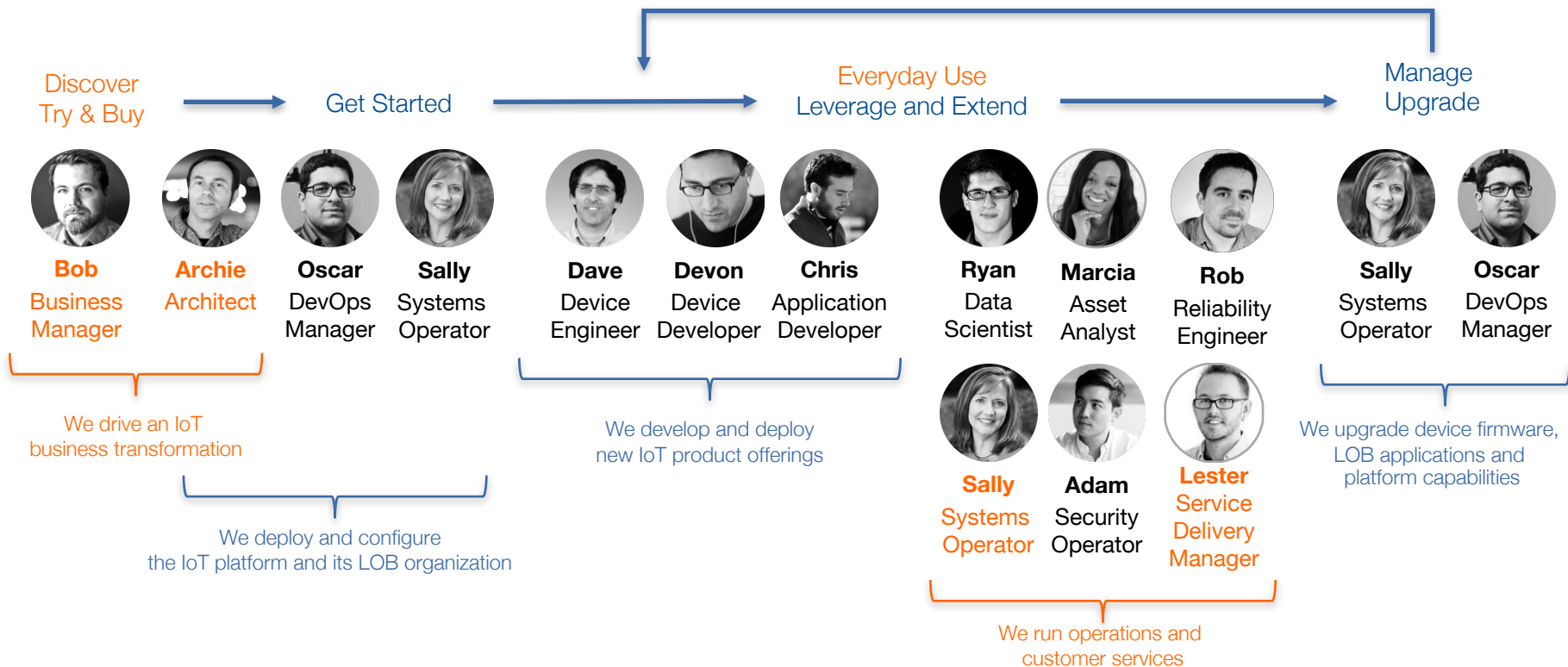
Security Analytics, Data Protection, Auditing/Logging, Firmware Updates, Key/Cert Mgmt, Org Specific Security



IoT Personas



IoT Personas



Discover, Play and Try



I can discover
relevant
IoT industry
content

- **Bob** is a **Business Manager** in a LOB leading a business of existing and new products. He wants to understand how to leverage the connectivity and data of devices to create new streams of revenue. He will discover industry content on ibm.com and act on solution proposals from Archie.
 - Get an introduction to business impact of IoT
 - See case stories on IoT Industries



I can rapidly
deploy a IoT
POC boilerplate
in Bluemix

- **Archie** is a **Solution Architect** that propose, prove and deploy the IoT Platform to the LOB. He decides in integration strategies and architectures for the new IoT platform, existing business systems and devices in production
 - Play and Try with his physical devices on Watson IoT Platform
 - Deploy into IBM Bluemix and add services to his cloud IoT application

Playback – Discover



Bob – LOB Manager

Bob visits IBM.COM

He learns about Watson IoT

He browses industry solutions and IoT business transformation cases

Playback – Discover



Bob – LOB Manager

Bob learns about IoT industry solutions for Automotive

He asks Archie to provide a proposal on how IBM Watson IoT can support his strategies for IoT offerings in his LOB

Watson Internet of Things

What is Watson IoT Solutions News and webinars Partners Explore IoT

Watson Internet of Things > IoT for Automotive >

IoT for Automotive

Powerful solutions for the connected world

Watch the video

Overview Solutions Resources

Internet of Things for Automotive

Open and flexible solutions connect the data flow from vehicles or equipment and support that data flow through sophisticated analytics. These solutions provide new services through connected cars and greater efficiency in the supply chain. Reduce development time and effort in your industry transformation with IoT engineering solutions.

Transforming the automotive industry

Benefitting from IoT technologies

Connected cars

Connected cars

IBM IoT for Automotive is built on the IoT Foundation platform and enables vehicle to cloud to vehicle communications. New insights are developed from data flowing from vehicles that are enhanced through data from the vehicle's surroundings such as geolocation, traffic, weather and other vehicles to improve safety and information to drivers. New applications can easily be built from these insights using IBM Bluemix® IoT, which supports very short development cycles for rapid prototyping and scalable production solutions. IBM IoT for Automotive is available on IBM SoftLayer® Cloud.

Contact us

Manufacturing efficiencies

Systems engineering

Connecting cars to the internet to provide a more dynamic and engaging experience for drivers.

Contact IBM

Playback – Play



Archie – Solution Architect

Archie browse the Watson IoT Platform information

He chooses the option to Play in the IoT Platform playroom

Watson Internet of Things

What is Watson IoT Solutions News and webinars Partners Developers Explore IoT

Watson Internet of Things > IoT Platform >

IBM Watson IoT Platform

Develop and deploy enterprise-scale IoT solutions

White paper IoT solutions workshop: Schedule a personalized one-day workshop with our IoT solution experts.

Simplify development for networked devices

IBM Watson IoT Platform provides simple, powerful application access to IoT devices and data to help you rapidly compose analytics applications, visualization dashboards and mobile IoT apps.

IBM Watson IoT Platform

The IBM Watson IoT Platform allows organizations to securely and easily connect devices, from chips to intelligent appliances to applications and industry solutions. Scaling through cloud-based services and using rich analytics, IBM Watson IoT Platform provides organizations with new insight for innovation and transformation.

Play Try

Contact IBM

Playback – Play



Archie – Solution Architect

Archie is using real THINGS to play in the IoT Platform playroom

He chooses to use his Smartphone

IBM Watson IoT Platform

Play

Try


Buy

Play with our platform now

Connect a networked device to the IBM Watson IoT Platform in IBM Bluemix and watch live sensor data stream into a sample dashboard.

1 Select your device


Get going in 2 minutes or less



Smartphone

Load a web page on your smartphone to send live sensor data over the internet to the cloud-based IBM Watson IoT Platform.


SELECT



TI SensorTag

Send live sensor data from your TI SensorTag over the internet to the cloud-based IBM Watson IoT Platform.

SELECT



ARM mbed

Send live sensor data from your ARM mbed Ethernet Starter Kit over the internet to the cloud-based IBM Watson IoT Platform.

SELECT

^

Playback – Play



Archie – Solution Architect

Archie is using his phone to play in the IoT Platform playroom

He enters a device name for his smartphone

IBM Watson IoT Platform

Play

Try

Buy

Play with our platform now

Connect a networked device to the IBM Watson IoT Platform in IBM Bluemix and watch live sensor data stream into a sample dashboard.

✓

Select your device

2

Enter your Smartphone information

Device ID

Enter a short name to enable you find your smartphone in the public demonstration dashboard (for example: Brian_Phone).

This smartphone ID is available!

Archies-Phone


NEXT

3

View live data from your Smartphone

Play with the IBM Watson IoT Platform dashboard

See a live instance of the IBM Watson IoT Platform running in IBM Bluemix. Watch it process data from any device connected to the demonstration app above.



315

Devices connected in the last 24 hours

OPEN THE DEMO DASHBOARD

Playback – Play



Archie – Solution Architect

Archie's phone is connected as a device with sensors to the IoT Platform playroom

He moves and shakes his phone and see sensor values sent to IoT Platform

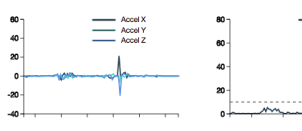

IBM Watson IoT Platform

PlayTryBuy

3 View live data from your Smartphone

Watch live sensor data



Your Smartphone is sending live sensor data through the IBM Watson IoT Platform service and from there into this demo application



Shake your phone until the acceleration exceeds 10 m/s².

☒ You're within your acceleration limit


Change the rule

Alert me if  acceleration is greater than 10  m/s²

SEE THIS DEVICE IN THE DEMO DASHBOARD

Play with the IBM Watson IoT Platform dashboard

See a live instance of the IBM Watson IoT Platform running in IBM Bluemix. Watch it process data from any device connected to the demonstration app above.



315

<https://play.internetofthings.ibmcloud.com/dashboard/#/devices/browse/drilldown/iot-phone/Archies-Phone>

Telenor SE 10:03 100 %

← t.eu-gb.mybluemix.net 1

Your device ID:
Archies-Phone

☒ Connected

Published Messages: 169

Movement		
Alpha	Beta	Gamma
-330.11	37.41	1.62

Acceleration		
X	Y	Z
-0.01	0.30	0.31

Playback – Play



Archie – Solution Architect

Archie switches to the IoT Platform dashboard and locates his device in the list.

He explores the device metadata, views the messages and topic data sent from his device and the historical data stored.

The screenshot displays the IBM Watson IoT Platform interface. The main section shows a list of devices under the heading 'Devices'. A blue box highlights the 'Archie-Phone' device in the list. To the right, a detailed view of the 'Archie-Phone' device is shown, including connection information, recent events, and sensor information.

IBM Watson IoT Platform

Devices

browse

Device ID	Device Type	Class ID
99aa0fdb-9a1b-47dc-9408-2e27f623eab5	iotsensortag	Device
9b675ae3-6939-477d-9d49-aea7530cf530	iotammbed	Device
9cfe3c03-808e-4eca-bd98-a649107ff342	iotarduinouno	Device
9f558c5c-4b4e-485d-a14a-a5a0a605bf12	iotammbed	Device
AhmedPhone	Android	Device
Archie-Phone	iot-phone	Device
Brian_Phone1	iot-phone	Device
D4F46F9468AA	Ardu	Device
ArduinoX1	arduino	Device
B0B448C95F06	SensorTag	Device
B0B448D23684	iotsensortag	Device
B2_Phone	iot-phone	Device
BC6A29ABDDBA	ti-sensortag	Device

Results 81-90 of 324 (1 selected)

Connection Information

Device ID: Archie-Phone
Device Type: iot-phone
Date Added: Wednesday, January 20, 2016
Added By: a-play-f5cym38oit
Connection State: Connected on Wednesday, January 20, 2016 at 2:52:13 PM from 85.226.74.110 with an insecure connection [Refresh](#)

Recent Events

Event	Format	Time Received
sensorData	json	Jan 20, 2016 2:52:35 PM
sensorData	json	Jan 20, 2016 2:52:35 PM
sensorData	json	Jan 20, 2016 2:52:36 PM
sensorData	json	Jan 20, 2016 2:52:36 PM
sensorData	json	Jan 20, 2016 2:52:36 PM
sensorData	json	Jan 20, 2016 2:52:37 PM
sensorData	json	Jan 20, 2016 2:52:37 PM
sensorData	json	Jan 20, 2016 2:52:37 PM
sensorData	json	Jan 20, 2016 2:52:37 PM
sensorData	json	Jan 20, 2016 2:52:38 PM

Sensor Information

Event	Datapoint	Value	Time Received
sensorData	d.id	Archie-Phone	Jan 20, 2016 2:52:38 PM

Playback – Try



Archie – Solution Architect

Archie chooses to deploy the Play application into his own instance of IoT Platform in IBM Bluemix cloud

[IBM Watson IoT Platform](#)[Play](#)[Try](#)[Buy](#)

Try the IBM Watson IoT Platform

Deploy your own IoT sample app... for free!

We handle the entire process for you, and it only takes a few minutes. We deploy your own instance of the IBM Watson IoT Platform service in IBM Bluemix, provide a sample Node.js application, and automatically connect them through the IBM Watson IoT APIs.

Inspect, rewrite, and extend the sample source code using the online tools available in IBM Bluemix DevOps or your own desktop tools. Test data from your own IoT devices and sensors using your smartphone. As you iterate on your application design and code, you can redeploy your app, keeping all your devices connected to the IoT service, and evolve towards your own IoT solution. When you're ready, you can deploy the IBM Watson IoT Platform Analytics service to perform analytics on data from your IoT devices.

Get started now!

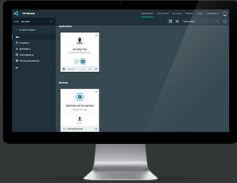
I have an IBM Bluemix account:

DEPLOY MY APP

I need an IBM Bluemix account:

SIGN UP

[LEARN MORE ABOUT IBM Bluemix](#)



- 1

Sign up to Bluemix (or log in)

Sign up for a 30 day free trial - no credit card required.

2

Provide your app details

Now that you are logged in, just click Deploy! (if you really want you can review or change the default IBM Bluemix settings first: App Name, Region, Organization and Space.)

3

Your app is being deployed

Please wait a few moments while your app is being deployed, it usually takes about 5 minutes.

4

Your app is deployed

Your own sample app and IBM Watson IoT Platform are now running in IBM Bluemix.

Playback – Try



Archie – Solution Architect

Archie enters account and configuration information.

The application is deployed and started.

The screenshot shows the IBM Watson IoT Platform interface. At the top, there are tabs for 'Play', 'Try' (which is selected), and 'Buy'. The main content area is titled 'Deploy this application to Bluemix'. Below this, it says 'Deploying this app will create a private DevOps Services project for you. [Learn more.](#)'. A box displays the application icon and details: 'DISCOVER-IOT-SAMPLE', 'GIT URL: <https://github.com/ibm-messaging/discover-iot-sample>', and 'GIT BRANCH: master'. Below this, a list of four steps with green checkmarks indicates successful completion: 'Created project successfully', 'Cloned repository successfully', 'Configured pipeline successfully', and 'Deployed to Bluemix successfully'. A 'Success!' message follows, stating 'You've added an instance of this app to your organization in Bluemix.' Two buttons, 'VIEW YOUR APP' and 'EDIT CODE', are provided. At the bottom, it says 'You are logged in as [archie@us.ibm.com](#). [Log out.](#) [Terms of Use](#)'. A blue button labeled 'IOT SAMPLE APP' with a play icon is also visible. At the very bottom, a URL is shown: 'discover-iot-sample-archie-1012.mybluemix.net'. A small upward arrow icon is in the bottom right corner.

Playback – Try



Archie – Solution Architect

Archie reviews the deployed boilerplate and adds architectural services he wants to try

The screenshot shows the IBM Bluemix dashboard for an application named 'discover-iot-sample'. The interface includes a left sidebar with navigation options like 'Overview', 'Files', 'Logs', 'Environment Variables', 'Start Coding', and 'SERVICES'. The main area displays application details: 'INSTANCES: 1', 'MEMORY QUOTA: 64', and 'AVAILABLE MEMORY: 960.0 MB'. Below this are buttons for 'ADD A SERVICE OR API', 'BIND A SERVICE OR API', and 'ENABLE APP FOR MOBILE'. On the right, there's a section for 'Internet of Things Foundation' with a 'Show Credentials' link. The top right corner shows the 'GIT URL' and an 'EDIT CODE' button. The bottom right corner features 'APP HEALTH' (indicating 'Your app is running.'), 'ACTIVITY LOG', and a link to 'Estimate the cost of this app'.

Playback – Try



Archie – Solution Architect
Chris – Developer

Archie try the sample app.

Archie and Chris explores the
Watson IoT Platform APIs and
recipes.

They prototype new applications
using IoT data and Bluemix
services.

A screenshot of the 'Watson Internet of Things' website, specifically the 'Developers' section. The page has a dark blue background with white text. At the top, there's a navigation bar with links like 'What is Watson IoT', 'Solutions', 'News and webinars', 'Partners', 'Developers', and 'Explore IoT'. Below this, a large heading says 'Start building your IoT application now using IBM Watson IoT Platform APIs, demos and recipes.' with a red 'Get started now' button. A horizontal menu below the heading includes 'Browse by goal', 'Recipes', 'Community', 'Blogs', and 'IoT Devices'. Under the 'Browse by goal' tab, there are three sub-sections: 'APIs', 'Docs', and 'Demos'. The 'APIs' section is active and shows a list of APIs under 'IBM Watson IoT Platform Connect' and 'IBM Watson IoT Platform Analytics: Cognitive APIs'. The 'Cognitive APIs' section is further divided into 'Natural Language Processing' and 'Image Analytics'. A red 'Contact IBM' button is in the bottom right corner.

Watson Internet of Things

What is Watson IoT Solutions News and webinars Partners Developers Explore IoT

Watson Internet of Things > Developers >

Start building your IoT application now using IBM Watson IoT Platform APIs, demos and recipes.

Get started now

Browse by goal Recipes Community Blogs IoT Devices

APIs Docs Demos

Explore our APIs to see what you can do

IBM Watson IoT Platform Connect

- MQTT API for applications
- MQTT API for devices
- MQTT API for gateways
- HTTP API for applications
- HTTP API for devices

IBM Watson IoT Platform Analytics: Cognitive APIs

Natural Language Processing

- Natural Language Classifier
- Concept Expansion (Beta)
- Dialog
- Language Translation

Image Analytics

- Alchemy Vision
- Visual Recognition (Beta)

Text Analytics

Contact IBM

More in design ...

- More design for Discover, Play and Try is coming
 - IoT Industry Solution starter apps
 - More recipes on Devices, Gateways, IoT Platforms and Services
 - Demonstrator of Blockchain integrations
 - More on Cognitive Analytics
 - More 'Getting started' for IoT developers
 - More content on IoT Academy curriculum
- What else should we add to the Discover – Play – Try design?
- What should be our priorities?

Provide a integrated platform



I can quickly bring new teams and devices into our IoT platform

Sally is a LOB **System Operator**. She handles the day to day system operations by on-boarding new users, new device types and makes sure that devices are registered, are behaving, and have latest firmware

- Overview and act on operational state of the platform
- On-board new team members w/ predefined roles
- Create new workspaces and operational boards for managed devices



I can log into the IoT platform and see the state of my client assets

Lester is a **Service Delivery Manager** responsible for a SLA with a client to the LOB. He leads a team of maintenance engineers, manages equipment. He uses the IoT Platform and LOB industry applications to monitor, plan and service managed equipment.

- On-board new managed devices
- Monitor and service monitored devices
- Setup rules for predictive and real-time analytics to effectively minimize asset and service downtime

Playback – An integrated IoT platform



Sally – System Operator

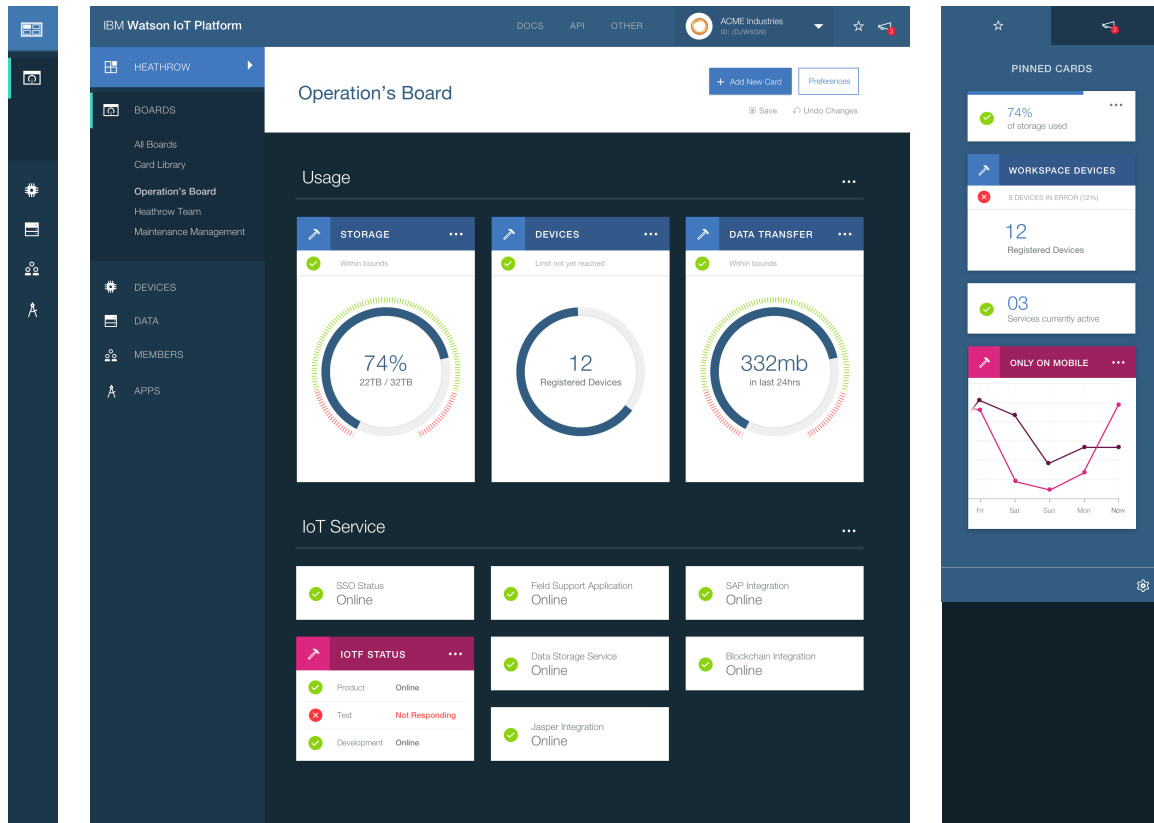
Sally logs into the IoT Platform

She can use the navigation bar to open

- Boards and Cards
- Connect
- Information Management
- Analytics
- Risk Management
- Administration

She can view system health on the operators board

She can view notifications and other information on a sidebar



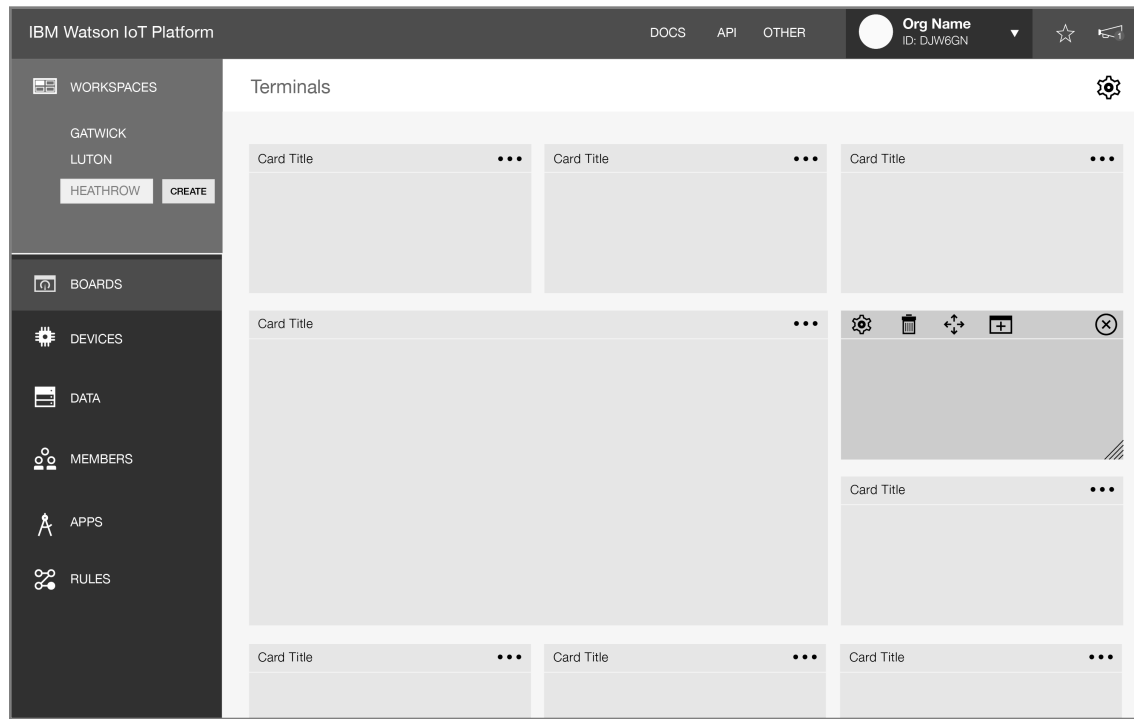
Playback – An integrated IoT platform



Sally – System Operator

Sally needs to on-board Lester and his team at Heathrow Airport

She starts by creating a new 'HEATHROW' workspace that will act as a reference for Users, Access, Permissions, Devices and Data.



An integrated IoT platform



Sally – System Operator

Sally on-boards Lester and his team as new users

She makes Lester an Operator for the Heathrow and Gatwick workspaces and its resources

IBM Watson IoT Platform

DOCS API OTHER

Org Name ID: DJW6GN

ADD MEMBER

ID	Email address	Role	Date Added	Added By
0001	sally@acme.com			
004A	oscar@acme.com			
0002	bill@acme.com			
0004	john@acme.com			
0003	marcia@acme.com			
005B	oliver@acme.com			
0014	bob@acme.com			
0062	liam@acme.com			
0023	marie@acme.com			

Add Member

Email address: Guest? ☐

+ Add another

Permissions

Heathrow (this workspace) Role:

Gatwick Role:

+ Configure for another workspace

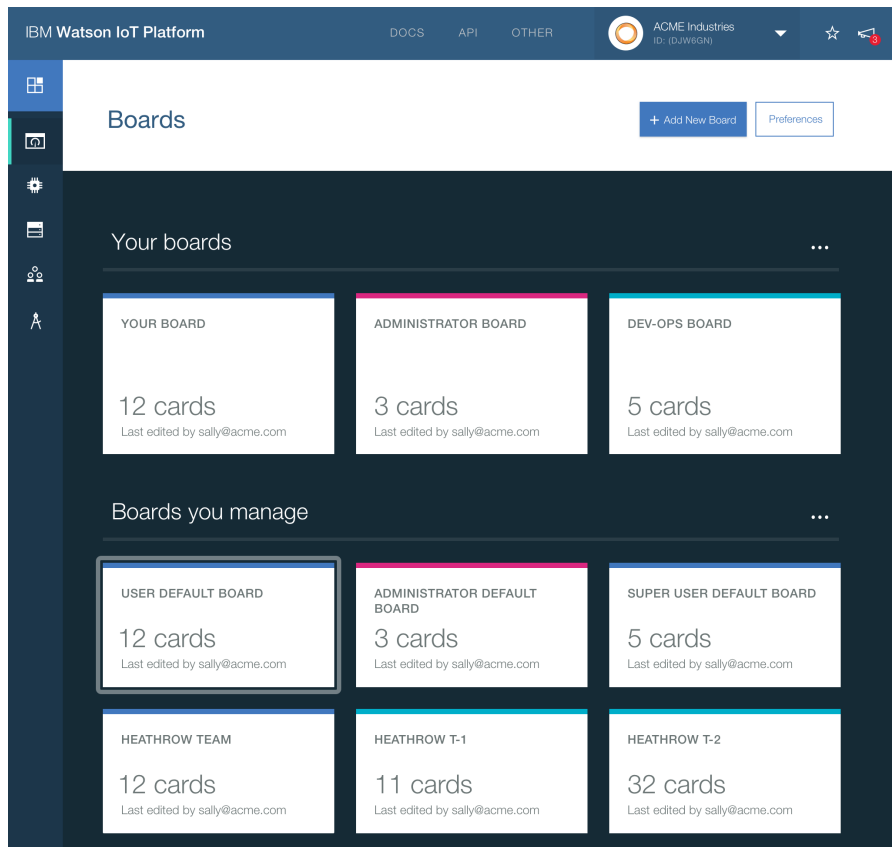
Send Invite(s)

An integrated IoT platform



Sally – System Operator

Sally provides Operator and Maintenance Boards for Lester's team at Heathrow



The screenshot displays the IBM Watson IoT Platform interface. At the top, the header includes the platform name, navigation links (DOCS, API, OTHER), and user information (ACME Industries, ID: IDJW6GN). The main section is titled 'Boards' and features a '+ Add New Board' button and a 'Preferences' link. Below this, the interface is divided into two main sections: 'Your boards' and 'Boards you manage'. Each section contains a grid of board cards, each showing the board name, the number of cards, and the last editor.

Section	Board Name	Cards	Last Edited By
Your boards	YOUR BOARD	12 cards	sally@acme.com
	ADMINISTRATOR BOARD	3 cards	sally@acme.com
	DEV-OPS BOARD	5 cards	sally@acme.com
Boards you manage	USER DEFAULT BOARD	12 cards	sally@acme.com
	ADMINISTRATOR DEFAULT BOARD	3 cards	sally@acme.com
	SUPER USER DEFAULT BOARD	5 cards	sally@acme.com
	HEATHROW TEAM	12 cards	sally@acme.com
	HEATHROW T-1	11 cards	sally@acme.com
	HEATHROW T-2	32 cards	sally@acme.com

An integrated IoT platform



Lester –
Service Delivery Manager

Lester logs into the IoT platform

He navigates to the Devices
section

He starts to on-board the assets
his team is monitoring

IBM Watson IoT Platform

DOCS API OTHER

ACME Industries
ID: (DJW6GN)

Devices

browse | action | types

+ Add Devices Preferences

<input type="checkbox"/>	Device ID	Device Type	Class ID	Date Added	Location	
<input type="checkbox"/>	HTR-T1-elev.8	elevator	Device	Aug 13, 2015 2:09:23 PM	Terminal 1	⚠
<input type="checkbox"/>	HTR-T1-elev.21b	elevator	Device	Aug 13, 2015 2:09:25 PM	Terminal 1	
<input type="checkbox"/>	HTR-T2-elev.7a	elevator	Device	Aug 13, 2015 2:09:25 PM	Terminal 2	⚠
<input type="checkbox"/>	HTR-T3-elevator8b	elevator	Device	Aug 13, 2015 2:09:29 PM	Terminal 3	

An integrated IoT platform

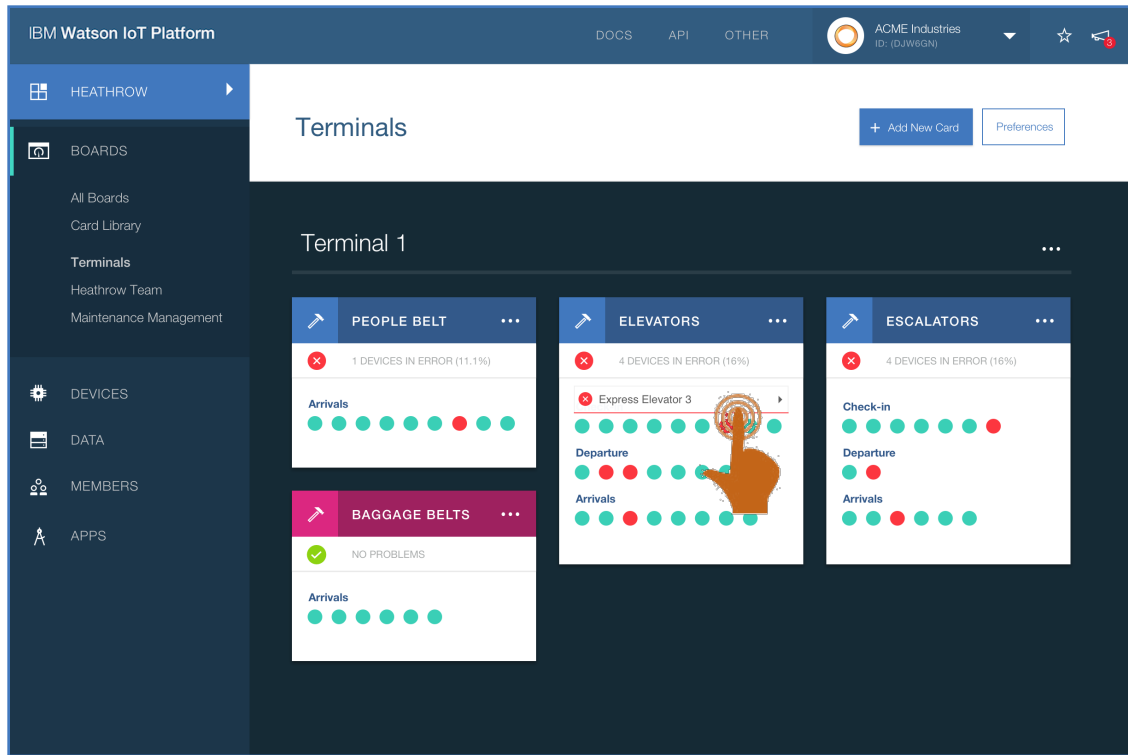


Lester –
Service Delivery Manager

On the Maintenance board, Lester sees the state of the assets his team is managing

Some of the elevators are not operating. He browses to the Devices section to understand its state using the latest events and sensor data.

He concludes on an important device state to monitor in real-time.



An integrated IoT platform



Lester –
Service Delivery Manager

Lester sets up real-time analytics rules and actions on the the assets he is managing

He starts monitoring alerts on the Notification panel

The screenshot displays the IBM Watson IoT Platform interface. The top navigation bar includes 'IBM Watson IoT Platform', 'DOCS', 'API', 'OTHER', and a user profile section for 'Org Name' (ID: DJW6GN). The main content area is titled 'Rules' and contains a table with columns: Name, Description, Alerts, and Activated. The table lists three rules: 'Overheat detection', 'Leak detection', and 'Flood detection'. The 'Leak detection' rule is expanded, showing a conditional logic rule: 'If lift.humidity is > 4.5 then Alert all users and Email [Lester]'. To the right of the Rules table is a 'Notification panel' showing two alerts: 'Alert: The temperature of Lift 12 has reached the threshold of 30°C' and 'Alert: The humidity of Lift 5 has exceeded the safe limits and is reporting 7.4'. At the bottom right of the notification panel is a 'VIEW ALL & MANAGE' button.

Name	Description	Alerts	Activated
<input type="checkbox"/> Overheat detection	Detect overheated engine during lift operation	Notification to all users	<input checked="" type="checkbox"/>
<input type="checkbox"/> Leak detection	Monitor the humidity in the lift to detect drips	Notification to all users & email	<input checked="" type="checkbox"/>
If lift.humidity is > 4.5 then Alert all users and Email [Lester]			
<input type="checkbox"/> Flood detection	Monitor the humidity in the shaft to detect floods	Notification to all users	<input checked="" type="checkbox"/>

Alert
The temperature of Lift 12 has reached the threshold of 30°C

Alert
The humidity of Lift 5 has exceeded the safe limits and is reporting 7.4

VIEW ALL & MANAGE

More in design ...

- More design for an integrated Watson IoT Platform is coming
 - More improvements in platform user experience
 - Service integrations and extensions (e.g. Weather, Operators...)
 - Mapping data from physical sensors and logical Things
 - User roles and permissions
 - Richer board experience with Analytics and Risk cards
 - Queries, Tags, ...
- What else should we add to the integrated platform design?
- What should be our priorities?

Summary and Conclusions

- Watson IoT Platform Design
 - Focus on outside-in design, driven by personas and scenarios
 - Improve the integrated Watson IoT Platform user experience
- IBM Design Thinking ensuring your involvement
 - Stay connected with our Watson IoT Platform design
 - Become a Sponsor User for Watson IoT Platform
- Please fill out this one minute survey

Thank You

InterConnect 2016

The Premier Cloud & Mobile Conference

Your Feedback is Important!

Access the InterConnect 2016 Conference Attendee Portal to complete your session surveys from your smartphone, laptop or conference kiosk.



February 21 – 25
MGM Grand & Mandalay Bay
Las Vegas, Nevada