

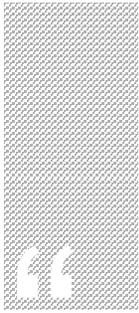


# Faster Time to Innovation with IBM® Bluemix™

*Neil Postlethwaite – Director, Offering Management, IBM Watson IoT Platform and Device Ecosystem*

Speed to market is essential for businesses to maintain a competitive edge. Innovation, the critical enabler for creating a differentiated position in an ever crowded marketplace, delivered with speed to market urgency is what distinguishes winning companies from their competition.

Often the challenge is not identifying the differentiating innovation but rather being able to quickly incorporate it into a new or existing product. The question many business leaders ask is not ‘should we do this?’ but rather ‘can we get this done?’ When the nature of the innovation is designed to create advantage by harnessing data from connected devices in the context of the Internet of Things, businesses today are able to ‘get it done’ quickly courtesy of the IBM® Bluemix™ platform and IBM Watson™ IoT Platform. Bluemix contains a complete suite of development tools, services and connectors running on top of a hosted Infrastructure as a Service. All of this has been designed to allow developers to concentrate on innovation without having to worry about creating a development environment first.



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Bluemix is designed with open-source in mind. Applications can be created from one of four different compute options: instant runtimes via Cloud Foundry, containers using Docker, virtual machines utilizing OpenStack, or event-driven actions with Bluemix OpenWhisk. Developers can try out each compute type before making a selection that best meets their requirements. Additionally, application boilerplates facilitate developing in your preferred language. And data-enriching services like IBM Watson™ for cognitive analytics, or other services for mobility, security and connectivity offer many options for extending an application’s workflow.



Along with the developer community and certified third party ecosystem partners, IBM provides many Bluemix services that are available for developers to take advantage of. As you’d expect, these tools and services come with generous amounts of runtime execution, storage and memory, available for free during a trial to enable developers to innovate with no barriers.

Developers of Bluemix applications manage data for their modern apps and associated services with a combination of SQL and NoSQL databases, including:

- MongoDB
- Cloudant
- Redis
- dashDB
- PostgreSQL



NoSQL databases are particularly well-matched to cloud native apps for both managing large data volumes and simplifying development.

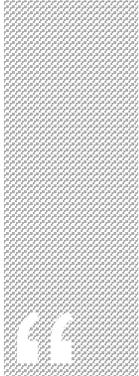
Bluemix provides a single user experience across public, dedicated and local (on premise) cloud deployment types. By default, Bluemix applications run on the public cloud. Organizations and applications that require more security or must comply with regulations can run either on dedicated single tenant servers in IBM cloud data centers or private ones behind their own corporate firewall.

All Bluemix cloud deployment types, by eliminating time spent on infrastructure, let developers focus on innovating their applications. And Bluemix further facilitates innovation with a variety of tools to make development easier—for example, the Cloud Foundry Command Line, Eclipse or DevOps services such as Git.

## IBM Ties it Together to Capitalize the Internet of Things

Efficiently developing the application in the cloud is one piece of the IoT equation. Another is using those cloud-based applications to connect, collect and analyze data from IoT devices, sensors and gateways. IBM's Watson IoT Platform is the comprehensive service which feeds IoT-generated data into application workflows. Structured and unstructured sensor data collected from managed devices is transferred securely using either the OASIS open standard MQTT lightweight protocol or HTTP. The

Watson IoT Platform manages the flow of data up into the cloud and provides both REST and real time APIs to allow the data to be consumed by applications providing analytics, visualization and driving operational or business decisions. Applications can also enact appropriate responses, which may mean sending an actionable command downstream or presenting the data on a mobile device or other intelligent endpoint.



*“Because rapidly delivering innovative applications requires both streamlining and evolving development and operations workflows, open source architecture and pay-as-you-go flexibility are basic to Bluemix.”*

IBM, by embedding documentation throughout the Bluemix developer environment, makes it easy for developers to get the right information while working on their specific project. Selecting a specific programming language or operating system, for example, filters the technical information Bluemix makes available in answering a search query.

Beyond documentation, IBM maintains and moderates the IBM developerWorks® community, which among other things provides a knowledge base of questions and answers, ‘how to’ blog articles, Bluemix service tutorials, and explanations of error codes/corrections. From developerWorks a user can also access the peer-to-peer community and collaboration site, StackOverflow.



Because rapidly delivering innovative applications requires both streamlining and evolving development and operations workflows, open source architecture and pay-as-you-go flexibility are basic to Bluemix. Bluemix anticipates what software developers need to get their best application ideas to market quickly.

Sign up for a free Bluemix account and try the IBM Watson IoT Platform at <http://artofthepossibility.com/bluemix-free-trial/> (<http://artofthepossibility.com/bluemix-free-trial/>). Contact your Avnet sales and technical support representatives to learn more about to putting IBM Bluemix to work for you.

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#### Neil Postlethwaite

Neil Postlethwaite is Director of offering management for IBM's Watson Internet of Things Platform and IoT device ecosystem outreach activities working with silicon and gateway partners. He was appointed to his present position in early 2015, having previously been responsible for product management for IBM's Messaging Product portfolio, including IBM MQ, MessageSight & IBM's Internet of Things services. Prior to that, Mr. Postlethwaite was Senior Development Manager for IBM Integration Bus. He joined IBM in 1994 and has held many technical, project management and management positions across IBM's Messaging and Integration products. He has been responsible for deliveries of both IBM MQ and IBM Integration products across a myriad of platforms and release levels. Mr. Postlethwaite holds a degree in Electronic Engineering & Physics from Loughborough University.