



## Understanding IBM BlueMix

Er. Arvind Kaur

Computer Science & Engineering Dept.  
Chandigarh University, Gharuan  
Mohali, India

[arvindcse.cgc@gmail.com](mailto:arvindcse.cgc@gmail.com)

Er. Mandeep Singh

Computer Science & Engineering Dept.  
Chandigarh University, Gharuan  
Mohali, India

[mandeepinna@gmail.com](mailto:mandeepinna@gmail.com)

**Abstract**— Bluemix is the latest cloud offering from IBM. A platform for running virtually any application in the cloud without having to worry about the hardware, software, and networking needed to do so. Other Cloud platforms are also available like Microsoft Azure, AWS, etc. Comparison of BlueMix with other platforms is discussed later in the paper.

**Index Terms**— Cloud Foundry; PaaS; Azure; AWS.



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## INTRODUCTION OF BLUEMIX

It enables organizations and developers to quickly and easily create, deploy, and manage applications on the cloud. Bluemix is an implementation of IBM's Open Cloud Architecture based on Cloud Foundry, an open source platform as a service (PaaS).

If Bluemix is used, following tasks are avoided:

- Install runtime, container, and all libraries.
- Install needed services (databases, messaging, mobile, etc).
- Bind the services to the application, handle IP/port assignments.
- Setup dynamic routing and load-balancer.
- Setup four layers of built-in High-Availability.
- Setup streaming logging aggregation.
- Setup application performance monitoring .

## CLOUD FOUNDRY

Cloud Foundry is an open source platform as a service (PaaS) that lets you quickly create and deploy applications on the cloud. Cloud Foundry abstracts the underlying infrastructure needed to run a cloud, letting you focus on the business of building cloud applications. The beauty of Cloud Foundry is that it provides choice. Developers and organizations can choose:

1. Development Frameworks: Cloud Foundry supports Java™ code, Spring, Ruby, Node.js, and custom frameworks.
2. Application Services: Cloud Foundry offers support for MySQL, MongoDB, PostgreSQL, Redis, RabbitMQ, and custom services.
3. Clouds: Developers and organizations can choose to run Cloud Foundry in Public, Private, VMWare and OpenStack-based clouds.

## HOW EVERYTHING FITS TOGETHER?

A PaaS is software that is usually running on top of an IaaS and abstracts the complexities of the IaaS away. Figure 1 shows that BlueMix runs on top of Softlayer. Your app runs on top of BlueMix and has no knowledge of the IaaS layer.



**Fig. 1 PaaS BlueMix with App**

For developers, this meant that we wanted a system that would significantly reduce the time needed to create the application.

For businesses, we wanted to create a system which allows line-of-business users to easily create applications without needing a high level of technical know-how, reduce the total cost of ownership by introducing cost savings inherent in the cloud, and enable businesses to rapidly adjust to their customer and client needs by leveraging the flexibility cloud applications provide--instant updates, new features deployed automatically.

Bluemix removes all the infrastructure and middleware setup associated with application development, and gives you all the building blocks you need to rapidly compose innovative applications.

## FEATURES OF BLUEMIX

1. A range of services that enable you to build and extend web and mobile apps fast.
2. Optimized and elastic workloads.
3. Manageability of services and applications.
4. Processing power for you to deliver app changes continuously.
5. Fit-for-purpose programming models and services.



6. Continuous availability.

## SERVICES PROVIDED BY BLUEMIX

TABLE I. SERVICES

Services		
S.No.	Service Name	Description
1.	BLU Data Warehouse	The BLU Data Warehouse (BLUDW) service provides a powerful, easy to use, and agile platform for business intelligence and analytics.
2.	Cloud Code	With the Cloud Code service, you can run user JavaScript code on the mobile back end.
3.	Decision	The Decision service provides managed execution of business rules for your applications.
4.	IBM Data Cache	IBM Data Cache supports distributed caching scenarios for web and mobile applications.
5.	Identity as a Service	The Identity as a Service (IDaaS) offering provides application developers with a policy-based web single sign-on capability, for ibm.com registered users.
6.	DevOps Services (formerly JazzHub)	DevOps Services is a place where you can collaborate with others to plan, track, develop, and deploy software in public or private projects.
7.	IBM JSON Database	The IBM JSON Database Service lets you add a NoSQL JSON document store to your application.
8.	Mobile Application Management	The Mobile Application Management service provides implicit authentication and authorization services for Bluemix applications that are developed with the IBM Mobile Cloud Platform SDK.
9.	Mobile Data	Mobile Data is a simple data storage service. You can use Mobile Data Service to store objects that need to be created and persisted from a mobile client.



Services		
S.No.	Service Name	Description
10.	Push	You can use push notifications in mobile applications to send information to a mobile device even when the application is not being used.
11.	SQL Database	The IBM SQL Database adds an on-demand IBM DB2® Online Transaction Processing SQL database to your application.
12.	IBM Enterprise MapReduce	The IBM Enterprise MapReduce Service adds Hadoop-based analytics to your application on demand
13.	IBM MQ Light	IBM MQ Light Service supports client applications that use the WebSphere MQ messaging client protocols.
14.	IBM Session Cache	IBM Session Cache is an elastic data grid that stores and persists HTTP session objects to the data grid.

## BENEFITS OF BLUEMIX

Using BlueMix, we can easily add functionality to the application using IBM and partner provided services. Anyone can use the languages, runtimes, and frameworks that you are most familiar with. You can quickly deploy your app. Time is saved by just worrying about the code and not the infrastructure.

## COMPARISON OF CLOUD PLATFORMS

### A. Microsoft Azure

It has very comprehensive services in offering. Working with Visual Studio 2012 or 2013 and Azure is amazingly simple since deployment is just a mouse click away from your development environment.

### B. Amazon Web Services

It does not discriminate between Windows and Linux platforms, and by doing that becomes a truly versatile platform. This is definitely not a platform for startups or small companies, since it is not easy to work with AWS.

### C. Google Cloud Platform

Google focus is Mobile and Big Data services which make it to have a very narrow service offering compared to other cloud platforms. There is lack of services and no free tiers for development.

## APPLICATIONS OF BLUEMIX

### D. Mobile Apps

Mobile apps run outside of the Bluemix environment and use services that the mobile apps are exposed to. Bluemix can also host application code that the developer would rather run on a back-end server in a container-based environment.



### **E. Web Apps**

Web apps consist of all the code that is required to be run or referenced at run time. Web apps are uploaded to Bluemix to host the application.

### **CONCLUSION**

This means that cloud applications build on BlueMix will:

1. Reduce time for application/infrastructure provisioning.
2. Allow for flexible capacity.
3. Help to address any lack of internal tech resources.
4. Reduce Total Cost of Ownership (TCO).
5. Accelerate exploration of new workloads – social, mobile, big data.

### **REFERENCES**

- [1] <https://www.ng.bluemix.net/docs/#overview/overview.html#lang>
- [2] <http://www-304.ibm.com/events/idr/idrevents/detail.action?meid=16628>
- [3] [https://hub.jazz.net/?utm\\_source=dw&utm\\_campaign=bluemix&utm\\_content=cl-bluemixfoundry&utm\\_medium=article](https://hub.jazz.net/?utm_source=dw&utm_campaign=bluemix&utm_content=cl-bluemixfoundry&utm_medium=article)
- [4] <https://ibm.com>

