IBM Bluemix

краткий обзор

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06.10.2015
Timing is critical...
Today’s apps must keep up with the speed of the app revolution.

Core IT

- Code
- Data
- Runtime
- Middleware
- OS
- Virtualization
- Servers
- Storage
- Networking

Benefits
- Fully customizable.
- Few limitations.
- Necessary for some solutions.
- Existing Investments.

Time Commitment
- Weeks to setup and deploy.
- Maintenance/upgrades of hardware and software.

Time to initial deployment

~ Weeks  ~ Days  ~ Minutes
Timing is critical...
Today's apps must keep up with the speed of the app revolution.

- **Infrastructure as a Service**

  - **Benefits**
    - Most control in the cloud.
    - Necessary for some solutions.
    - Infrastructure managed by SP.

  - **Time Commitment**
    - Minutes to provision VM.
    - Time to configure software and apps varies.
    - Maintenance/upgrades of OS, middleware, runtime.

- **IBM SoftLayer**

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Time to initial deployment

- Core IT: ~ Weeks
- ~ Days
- ~ Minutes
Timing is critical...

Today’s apps must keep up with the speed of the app revolution.

- **Platform as a Service**
  - **Benefits**: Setup environments and deploy apps very quickly. Infrastructure and platform managed by SP.
  - **Time Commitment**: Minutes to setup and deploy. Focus on your apps and their data.

- **IBM Bluemix**

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- **Time to Initial deployment**
  - Core IT: ~ Weeks
  - IaaS: ~ Days
  - ~ Minutes
A PaaS helps developers focus on what’s most important to them: The application

- Bluemix eliminates and dramatically simplifies various tasks:
  - OS patching
  - OS security hardening
  - Deployment
  - Load-balancing
  - Scaling
  - Health management

Customization; higher costs; slower time to value

Standardization; OPEX savings; faster time to value

Client Manages

Vendor Manages in Cloud
How does Bluemix work?

Bluemix embraces Cloud Foundry as an open source Platform as a Service and extends it with IBM, third party, and community built services.
Why are developers using Bluemix?

To **rapidly** bring products and services to market at lower cost

Go from zero to running code in a matter of minutes.

To **continuously** deliver new functionality to their applications

Automate the development and delivery of many applications.

To extend existing **investments** in IT infrastructure

Extend existing investments by connecting securely to on-premise infrastructure.
Bluemix is powered by open technology

Use any of Bluemix's three open source compute options to power your app. Bluemix handles the rest of the underlying stack for you.

CLOUD FOUNDRY

IBM CONTAINERS

VIRTUAL MACHINES
Instant Runtimes with Cloud Foundry

Cloud Foundry is an open source PaaS that offers devs the ability to quickly compose their apps without worrying about the underlying infrastructure. Bluemix extends Cloud Foundry with a number of managed runtimes and services, enterprise-grade DevOps tooling, and a seamless overall developer experience.
IBM Containers, Now Production-Ready

IBM Containers allow portability and consistency regardless of where they are run—be it on bare metal servers in Bluemix, your company’s data center, or on your laptop. Easily spin up images from our public hub or your own private registry.

Key Capabilities
- Easily deploy single containers or scalable groups
- Assign public and private networking for container communication
- Manage containers with integrated monitoring, logging, and auto-recovery
- Utilize the native Docker CLI
Powerful Openstack VMs

Virtual machines offer the most control over your apps and middleware. Bluemix uses industry-leading OpenStack software to run and manage VMs in a public cloud, a dedicated cloud, or your own on-premises cloud. Key OpenStack services such as Auto Scaling, Load Balancing, and Object Storage can be used in conjunction with Bluemix services to build and run hybrid apps.
How do you want to get started?

- .java
- .js
- .go
- .php
- .py
- .rb
- .net
- .xsp
- Community buildpacks
- I Have Code Already
- Browse Boilerplates
Using services in Bluemix

- Bluemix provides services that can be used by applications without requiring you to manage the setup and operation of those services.
- Available services are listed in the catalog in the web UI and can also be obtained by using the command `cf marketplace`.
- To use the service, you must bind the service to your application by using web UI or the command `cf bs`. 
Boilerplates

- Provide a fast way to get an application stated
- Package of sample application code and services
Cloudant NoSQL DB provides access to a fully managed NoSQL JSON data layer that’s always on. This service is compatible with CouchDB, and accessible through a simple to use HTTP interface for mobile and web application models.

- **Ease of Use**
  Work with self-describing JSON documents through a RESTful API that makes every document in your Cloudant database accessible as JSON via a URL. Documents can be retrieved, stored, or deleted individually or in bulk and can also have files attached. IBM takes care of the provisioning, management, and scalability of the data store, freeing up your time to focus on your application.

- **Powerful search, sync and more**
  With extremely powerful indexing, real time MapReduce and Apache Lucene-based full-text search, Cloudant NoSQL DB makes it easy to add advanced data analytics and powerful data access. Data access can also extend to Cloudant Sync, enabling data access from mobile devices and client apps to run connected or off-line.

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**Pick a plan**

<table>
<thead>
<tr>
<th>Plan</th>
<th>Features</th>
<th>Monthly prices shown are for country or region: Russian Federation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✔ Shared</td>
<td>20 GB of free data storage 500,000 Light API calls free per month 100,000 Heavy API calls free per month</td>
<td>$1.07 USD/GB $0.0321 USD/1000 Light API Calls $0.1605 USD/1000 Heavy API Calls</td>
</tr>
</tbody>
</table>

This plan provisions a Cloudant account on a shared Cloudant Cluster. This plan allows for up to 20GB of free data storage with 100,000 Heavy API calls and 500,000 Light API calls per month free. Usage above the free tier will be charged as per pricing details.
dashDB is a data warehousing and analytics solution. Use dashDB to store relational data, including special types such as geospatial data. Then analyze that data with SQL or advanced built-in analytics like predictive analytics and data mining, analytics with R, and geospatial analytics. You can leverage the in-memory database technology to use both columnar and row-based tables.

- **Powered by IBM BLU Acceleration and Netezza in-Database Analytics**
  IBM BLU Acceleration is fast and simple. It uses dynamic in-memory columnar technology and innovations such as actionable compression to rapidly scan and return relevant data. In-database analytic algorithms integrated from Netezza bring simplicity and performance to advanced analytics.

- **Connectivity**
  dashDB is built to connect easily to all of your services and applications. You can start analyzing your data right away with familiar tools.

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**Pick a plan**

<table>
<thead>
<tr>
<th>Plan</th>
<th>Features</th>
<th>Monthly price</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Entry</td>
<td>No charge for up to 1GB of data storage. 20 GB maximum data storage.</td>
<td>$53.50 USD/Monthly</td>
</tr>
</tbody>
</table>

Monthly prices shown are for country or region: **Russian Federation**

- One dedicated schema per service instance on a shared server. Recommended for up to 100 GB of pre-load data, based on typical compression.
Time Series Database (powered by Informix) is purpose-built for fast and efficient storage and analysis of time series data.

- **Scalable performance**
  Consolidates and organizes massive amounts of time-stamped data for consistently fast analysis.

- **Easy**
  Supports multiple APIs so applications and reports can seamlessly access time-stamped data alone or in combination with other data types (SQL, spatial, JSON). No knowledge of time series is required.

### Pick a plan

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<th>Features</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>small</td>
<td>1 GB free per instance. 10 GB max per instance.</td>
<td>$53.50 USD/Instance</td>
</tr>
</tbody>
</table>

Small plan, charged per month.

Monthly prices shown are for country or region: [Russian Federation](https://www.ibm.com/solutions/cloud/)

[VIEW DOCS]
Send relevant content to the right people at the right place and time with IBM Push for Bluemix.

- **Engage with users on their mobile devices**
  Push information to all application users or to a specific set of users and devices. You can even let users subscribe to specific tags or topics for notification. After users have been engaged, you can analyze the number of devices that are registered to receive notifications, the number of notifications sent, and the platforms of devices that are receiving notifications.

- **Single platform for notifying heterogeneous devices**
  Use simple and uniform REST APIs to configure, subscribe, send, and monitor push notifications to both iOS and Android devices.

### Pick a plan

<table>
<thead>
<tr>
<th>Plan</th>
<th>Features</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong></td>
<td>One million free push notifications per month</td>
<td>$21.49 USD/Million push notifications</td>
</tr>
</tbody>
</table>

IBM Push for Bluemix charges per million push notifications.
Expand the boundaries of your application. Leverage real-time geospatial analytics to track when devices enter or leave defined regions.

- **Monitor device locations in real-time.**
  Connect to data sources that support the MQTT protocol and monitor devices as they move into geographic regions of interest.

- **Control region monitoring using the geospatial API.**
  Define geographic regions and control monitoring of regions using the geospatial application programming interface.

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**Pick a plan**

Monthly prices shown are for country or region: Russian Federation

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<th>Features</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong></td>
<td>1M Region Checks FREE per month.</td>
<td>$3.21 USD/1M Region Checks</td>
</tr>
</tbody>
</table>

ℹ️ The Standard plan gives you device location geospatial region checks at a flat rate.
IBM Analytics for Apache Hadoop combines the power of 100% open source Apache Hadoop technology and Hadoop analytics capabilities from IBM BigInsights for Apache Hadoop to deliver insights across your organization. It provides a 2-node Hadoop cluster. IBM Analytics for Apache Hadoop is an extremely quick and simple way to try out BigInsights features without having to worry about installing, configuring, or administering a Hadoop cluster. For production use or enterprise-level POCs, use the IBM BigInsights for Apache Hadoop Bluemix service and provision one or more scalable clusters on bare metal hardware.

- **Immediately build Big Data applications!**
  
  This service provides an easy way to access data on Hadoop clusters, build applications, and analyze structured or unstructured data. Visualize your findings in charts and graphs. You can bring your data into Hadoop for analysis by using Big SQL, BigSheets, Text Analytics, Big R, or Machine Learning.

- **Built on open source technology**
  
  This service is powered by IBM Open Platform, which combines the power of 100% open source Apache Hadoop APIs and other Hadoop ecosystem projects.

### Pick a plan

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<tbody>
<tr>
<td>✓ Free</td>
<td>Up to 50 GB of HDFS data max two connections from Bluemix apps only</td>
</tr>
</tbody>
</table>

Monthly prices shown are for country or region: Russian Federation.
How it all fits together

Connect your device, send data to our cloud, set up and manage your devices, and use APIs to connect apps to your device data.

Your device or gateway
We start with your device, be it a sensor, a gateway or something else. To find out how to get it connected, search our recipes.

MQTT
Your device data is sent securely up to the cloud using the open, lightweight MQTT messaging protocol.

IBM Internet of Things Foundation
This is the hub of all things IBM IoT. This is where you can setup and manage your connected devices so that your apps can access their live and historical data.

REST & Real-time APIs
Use our secure APIs to connect your apps with the data coming from your devices.

Your application and analytics
Create applications within IBM Bluemix, another cloud, or your own servers to interpret the data you now have access to!
Monitor your apps in real time
Integrated diagnostics for detailed application behavior.
Edit Auto-Scaling Policy

Default Instance Limits
Allowable maximum instance count: 5
Default Minimum Instance Count: 1

Scaling Rule(s)

• Rule 1
  Add 1 instance(s) if average Memory utilization exceeds 80% for 600 seconds.
  Remove 1 instance(s) if average Memory utilization is below 30% for 600 seconds.

  Metric Type: Memory

  Scale Out:
  If average Memory utilization exceeds 80%, then increase 1 instance(s).

  Scale In:
  If average Memory utilization is below 30%, then decrease 1 instance(s).

Advanced Configurations

ADD A RULE

Schedule(s)

There are no unsaved changes.

SAVE  RESET
DevOps Services available today

Easy Access
Get started for free. With Git hosting and the built-in Web IDE, it’s zero to code in seconds.

Code Now
Use the built-in Web IDE, Eclipse, Visual Studio, or your tool of choice.

Build & Deploy
Automatically build and deploy your application to IBM’s cloud platform, Bluemix.

Team Collaboration
Share your work and collaborate through expert tools for Agile Development.
Choose how you code with Bluemix DevOps services

- Browser-based integrated development environment
- Full support for local development with Eclipse or Visual Studio
- Built-in support for Jazz Source Control
- Hosted Git repository
- Got GitHub? No problem
DevOps pipeline in Bluemix

IBM Bluemix DevOps Services can be configured to automatically run tests and if the tests pass, the code is deployed to Bluemix.
Links and materials

IBM Bluemix Documentation
https://www.ng.bluemix.net/docs/

IBM Bluemix DevOps Services
https://hub.jazz.net/docs

developerWorks->Cloud computing->IBM Bluemix
CURRENT COURSES

Getting Started with IBM Bluemix
IBM_developerWorks - DW001
Started - Aug 19, 2015

Cloud Application Developer Certification
IBM_developerWorks - DW002
Ended - Sep 04, 2015

Final course details are being wrapped up at this time. Your final standing will be available shortly.
Courses and publications are offered to help you prepare for the certification tests. The courses are recommended, but not required, before taking a certification test. When preparing for the certification test, keep in mind that real world experience is required to stand a reasonable chance of passing the certification test. Courseware does not replace the requirement for experience. Please note that course offerings are continuously being added and updated. If you want to purchase a training course, feel free to contact an IBM Global Training Provider.

Study Guide for the certification test.

Product Documentation
- Cloudant for Developers
- IBM Bluemix Documentation
- IBM Bluemix DevOps Services

Redbook
- IBM Bluemix Architecture Series: Web Application Hosting on Java Liberty

Publication number: REDP-5184-00

Many types of web applications are running on the Internet today. There are also as many ways to manage and maintain the infrastructure that powers those applications. IBM® Bluemix™ delivers quick and easy cloud capabilities to deploy and maintain your web application, with minimal hassle and overhead. As you follow along with two lab-style scenarios, this IBM Redpaper™ publication demonstrates how to create and deploy a web-based collaboration application on IBM
IBM Cloud
Professional Certification Program

Study Guide Series

Exam C5020-285 - IBM Cloud Platform
Application Development V1
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Test C5020-285: IBM Cloud Platform Application Development v1

Sample Test
→ Study Guide for the sample test/assessment test and the certification test.

This sample test is designed to give the candidate an idea of the content and format of the questions that will be on the certification exam. Performance on the sample test is NOT an indicator of performance on the certification exam and this should not be considered an assessment tool.

Sample Test for Test C5020-285

Assessment Test

To assess your current skill level and readiness for Test C5020-285 - IBM Cloud Platform Application Development v1, you can take a Web-based assessment test.

Passing this assessment test does not result in achieving a credential. It is designed to provide diagnostic feedback on the Examination Score Report, correlating back to the test objectives, showing how you scored on each section of the test.

- Number of questions: 48
- Time allowed in minutes: 90
- Passing score: 66%
- Language: English
- Test Fee: 30
- Where: Pearson VUE on-line testing system (link resides outside of ibm.com)
- Sponsor Area: Assessment: IBM Cloud Computing
- Test Title: A5020-285 Assessment: IBM Cloud Platform Application Development v1
Bluemix works.
Start a free trial today.
Thank you

Q&A