Skills. Ecosystem. Cloud.

CUNY Spring 2015

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Agenda

1 **Skills Gap**

2 **Ecosystem Development**

3 **Cloud Computing**

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THE SKILLS GAP

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An acute shortage of skills threatens our ability to address emerging opportunities and risks

Among organizations worldwide today…

1 in 10

has **all the skills it needs** to be successful applying advanced technology* for business benefit

1/4

have **major skill gaps** in mobile, business analytics, and security

40%

report a **skills shortage** in the ability to manage information

* Includes business analytics, mobile computing, social business, and cloud computing

Sources: IBM Tech Trends report 2012, Enterprise Strategy Group, CompTIA

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Skills

20%

U.S. Department of Labor Forecasts*

Skills **Roles** **Mastery**

*More than 20 percent increase in analytics-based jobs between now and 2018.

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Business Tech Trends – *Pacesetters are strategically integrating Cloud, Analytics, Mobile, and Social (CAMS)*

Pacesetting companies: partnering, insight-driven, integrate CAMS

2014

CAMS technologies: rapidly emerging but lack of skills

2012

CAMS: the business imperative appears

2011

Pacesetters

believe technologies are critical to their business success and **drive better business outcomes**

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Gartner finds that by 2015, the demand for data and analytics resources will reach 4.4 million jobs globally, but only one-third of those jobs will be filled. The emerging role of data scientist is meant to fill that skills gap.

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IBM clients consistently mention four key skills they look to hire

Analytics and Big Data

The Business Analyst

Applies business intelligence, predictive analytics, and other techniques to turn information into business insight

60% of enterprises face a shortage of business analytics skills today

The Data Scientist

Combines the skills needed to collect, store, manage, and understand patterns and trends in data

40% of enterprises report a skills shortage in ability to manage information

Information Security

The Cyber Security Professional

Requires a broad portfolio of security skills and systems thinking applied to business priorities

39% of organizations adding IT staff plan to hire information security professionals

Software Engineering & Mobile Dev

The Next Generation Software Engineer

Employs the skills and methodologies needed to keep pace with the rapidly evolving software engineering discipline

65% of enterprises face a shortage of mobile development skills today

Source: IBM Tech Trends report 2012

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The new era is defined by three shifts

Data is becoming the world's new natural resource, transforming industries and professions.

Data is the new basis of competitive advantage

The emergence of cloud is transforming IT and business processes into digital services.

Cloud is the path to new business models

Mobile and social are transforming individual engagement – creating expectations of value in return for personal information.

Engagement requires a systematic approach

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IBM Academic Initiative

IBM Corporation's skills program focused on partnering with university faculty

Our mission

Partner with academic institutions to better educate millions of students for a smarter planet and more competitive IT workforce

No Charge access to thousands of IBM **software** offerings

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IBM subject matter **experts & volunteer** network

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IBM Academic Initiative

Building skills for a Smarter Planet

What do you teach?

Whether you are teaching computer science, information technology, business, or marketing courses, IBM offers a wide range of products and solutions that can help you enhance your curriculum and enable your students to develop competitive skills on the latest industry-standard software, systems, and tools.

In addition to our publicly available resources, Academic Initiative members can get full-version software and professionally developed courseware at no charge.

Explore these topics to find resources for your academic field or discipline

- Business analytics
- Business process management
- Cloud computing
- Commerce, marketing, and supply chain
- Enterprise computing
- Information management
- IT service management
- Security and information assurance
- Social business
- Software engineering

Courseware and software

Looking for a fastpath to courseware and software?

Become an Academic Initiative member

- Discover more about the program (187KB)
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Contact IBM Academic Initiative

- Email
- → Get support

Featured teaching topics

Business intelligence
Demonstrate the importance of making business decisions to drive growth and control costs.

Big data and NoSQL
Cover all aspects of managing the variety, volume, and veracity of information.

Data protection and access management
Teach your students to ensure the security of all types of data.

Mobile development
Help your students learn how to design and develop mobile applications for popular platforms.

Popular topics

- → Adaptive procurement and optimized supply chain (including decision optimization)

IBM Narrows Big Data Skills Gap By Partnering With More Than 1,000 Global Universities

From Washington D.C. to the Philippines, IBM Creates Big Data and Analytics Curriculum for Universities Across the Globe; Announces Winners of 2013 Big Data and Analytics Faculty Awards

Select a topic or year

- News release
- Contact(s) information
- Related XML feeds
- Related resources

ARMONK, N.Y. - 14 Aug 2013: IBM (NYSE: IBM) today announced that it has added nine new academic collaborations to its more than 1,000 partnerships with universities across the globe, focusing on Big Data and analytics -- all of which are designed to prepare students for the 4.4 million jobs that will be created worldwide to support Big Data by 2015. The company also announced more than $100,000 in awards for Big Data curricula.

As part of IBM's Academic Initiative, the company is launching new curricula focusing on Big Data and analytics with Georgetown University, George Washington University, Rensselaer Polytechnic Institute and the University of Missouri, as well as a new addition to IBM's partnership with Northwestern University. Internationally, IBM is partnering with Dublin City University, Mother Teresa Women's University in India, the National University of Singapore, and the Philippines' Commission on Higher Education to offer data-driven degree programs, coursework and specialization tracks.

As part of today's news, IBM is also announcing the winners of its 2013 Big Data and Analytics Faculty Awards in which 14 university professors from around the world will receive $10,000 each for top rated curricula designed to develop the business and technical skills required for data-crunching jobs. The winning proposals include programs focused on computer science/electrical engineering, business administration, economics, strategic management, and math and statistics.

"Leaders in business, education and government must take action to foster a new generation of talent with the technical expertise and unique ideas to make the most of this tsunami of Big Data," said Richard Rodts, Manager of Global Academic Programs, IBM. "To narrow this skills gap, IBM is committed to partnering with universities around the world to provide students with Big Data and analytics curriculum to make an impact in today's data-driven marketplace."

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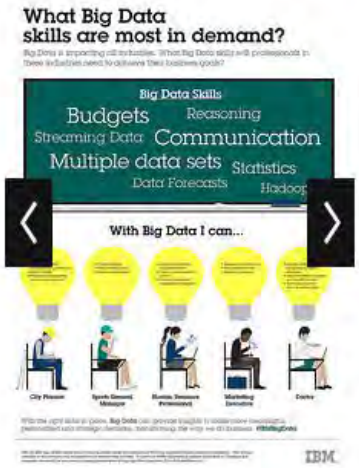
IBM Partners with 28 Business Schools and Universities to Help Train Tomorrow's Data Scientists

New programs provide big data and analytics degree seekers with skills that merge business and IT for successful data science careers

Select a topic or year

↓ News release
↓ Contact(s) information
↓ Related XML feeds
↓ Related resources

ARMONK, N.Y. - 28 May 2014: IBM (NYSE: IBM) today announced it is partnering with 28 new business schools and universities to help prepare students for the 4.4 million jobs that will be created worldwide to support big data by 2015.



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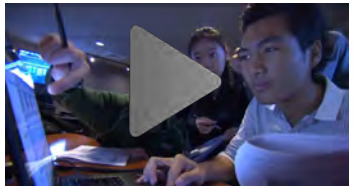

Working hand in hand with universities and business schools gearing up for the upcoming Fall 2014 semester, IBM is helping expand and launch new curricula providing students with business knowledge and IT skills for data intensive careers. For example, Case Western Reserve University is offering a new undergraduate program in data science and analytics that will provide a broad range of students with industry-specific skills to capitalize on big data for competitive advantage.

The explosion of big data has rapidly created a global and industry-wide opportunity for job candidates who can uncover insights from data to solve problems and act on findings quickly. Between now and 2022, the U.S. Bureau of Labor Statistics projects a faster-than-average increase in employment opportunities for computer and information research scientists. Yet, a

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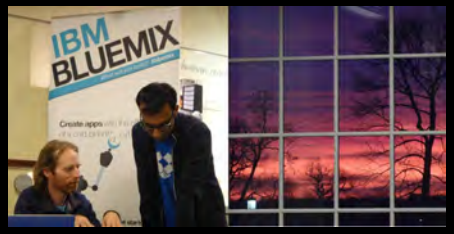
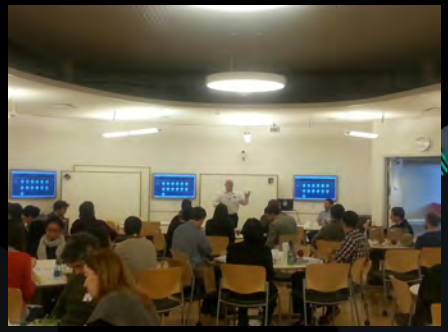
HackDFW



HackHops @ Johns Hop



TreeHacks Stanford

HACK UMASS
April 11-12 2015

Global Urban Datafest
Smart Cities Challenge
February 23, 2015

Harvard

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Mhacks U Michigan

Ecosystem Development

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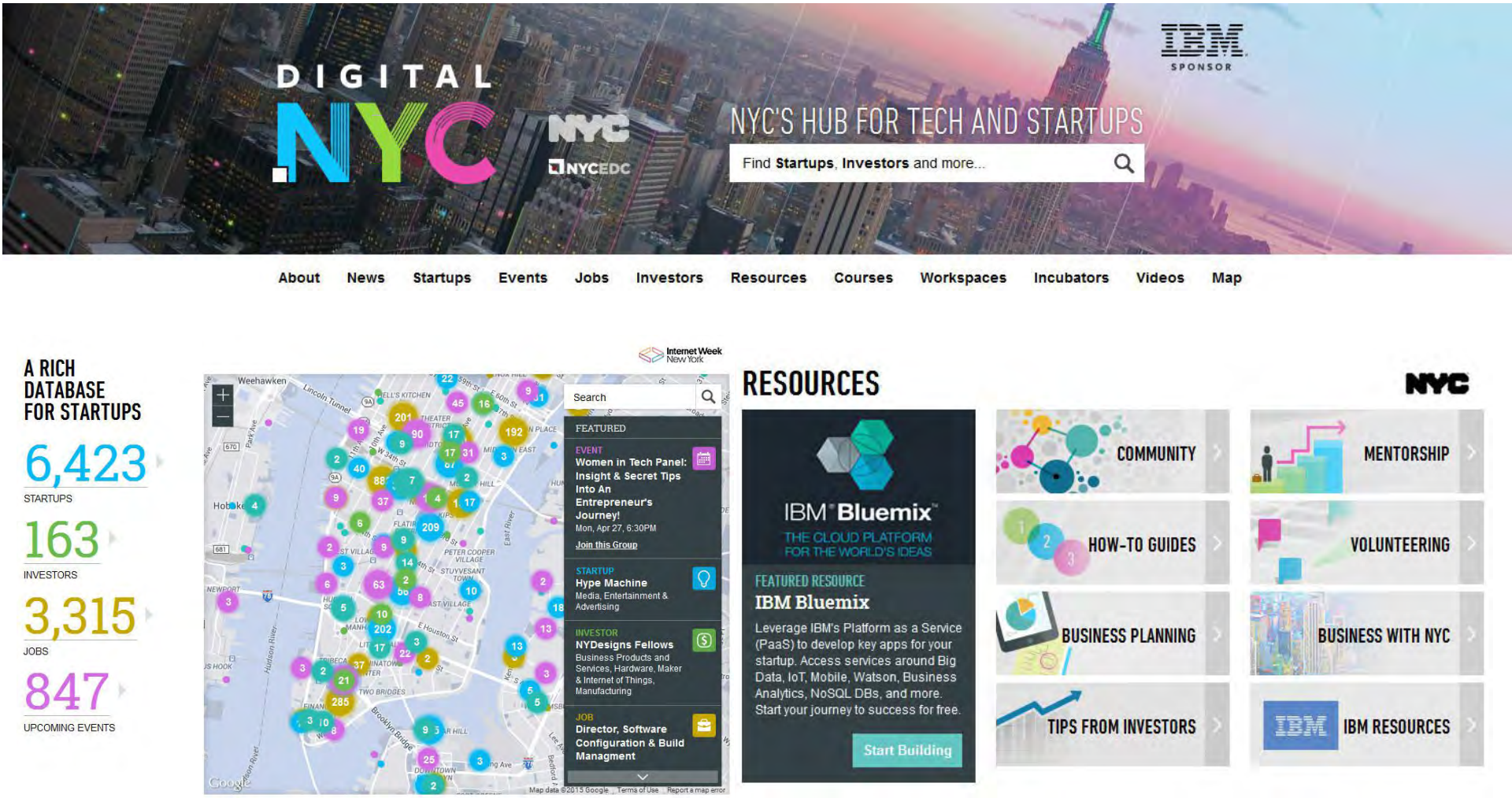
Digital.NYC

Digital.NYC is the official online hub of the New York City tech and startup ecosystem including news, events, startup resources and more.



IBM Global Entrepreneur Program for Cloud Startups

IBM is now offering more cloud credits to qualified startups than anyone else, period.

IBM Global Entrepreneur enables emerging companies to harness the power of IBM Cloud, as well as connect them into IBM's vast global network of clients, consultants, Innovation Centers, developers, and more.

Cloud: IBM Bluemix

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IBM Bluemix

IBM **Bluemix**

The Digital Innovation Platform

BUILD AND RUN APPS YOUR WAY

Based on the open source architecture of Cloud Foundry, Bluemix provides the flexibility to integrate development frameworks, languages and services that suit your needs.

Develop applications using Web IDE and Eclipse – while storing your code directly on Bluemix or GitHub.

Open Cloud

Bluemix is based on Cloud Foundry, an open source project, and features additional runtimes and services from the open source community. This makes Bluemix a great place to build and run applications that leverage technology and innovation from the open source developer community.

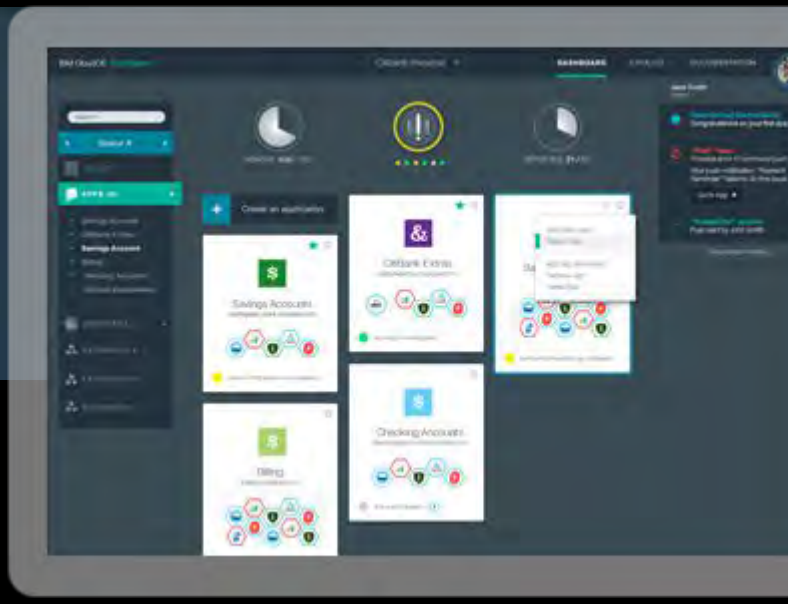
Flexibility and Choice

Bluemix not only offers developers a broad range of IBM, third-party and open source APIs and services, but it integrates with many of the developer tools you already use today.

Focus on the Code

By abstracting lower-level infrastructure components, Bluemix enables you to spend more of your time and talent writing the code that will differentiate your app and drive user adoption and engagement.

IBM Bluemix



IBM **Bluemix**

The Digital Innovation Platform

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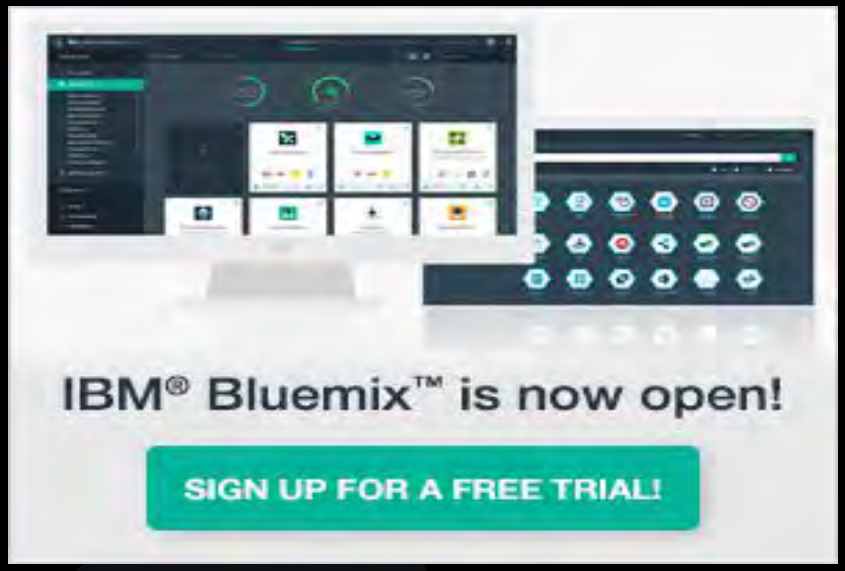

IBM Bluemix

Bluemix is an open-standards, cloud-based platform for building, managing, and running apps of all types, such as web, mobile, big data, and smart devices. Capabilities include Java, mobile back-end development, and application monitoring, as well as features from ecosystem partners and open source—all provided as-a-service in the cloud.

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IBM Bluemix

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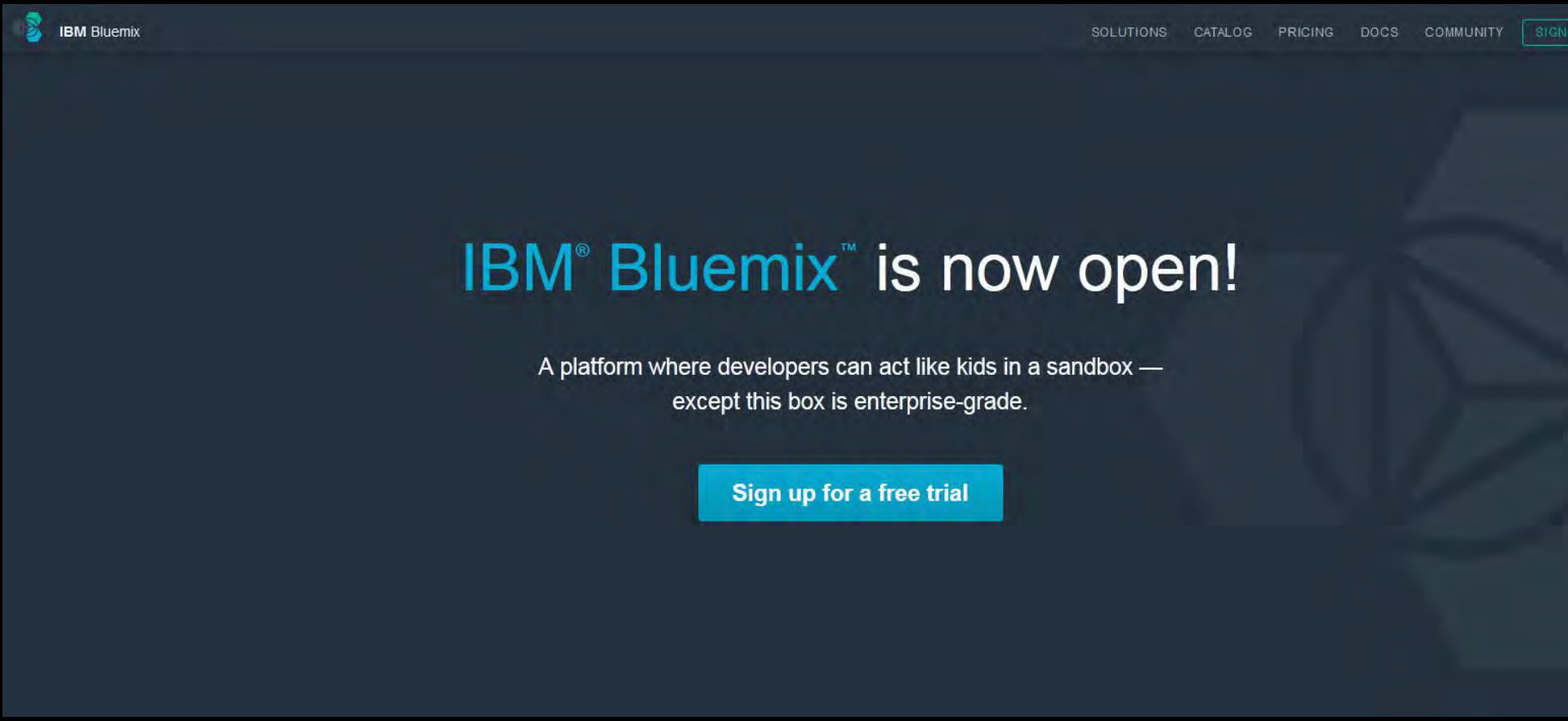
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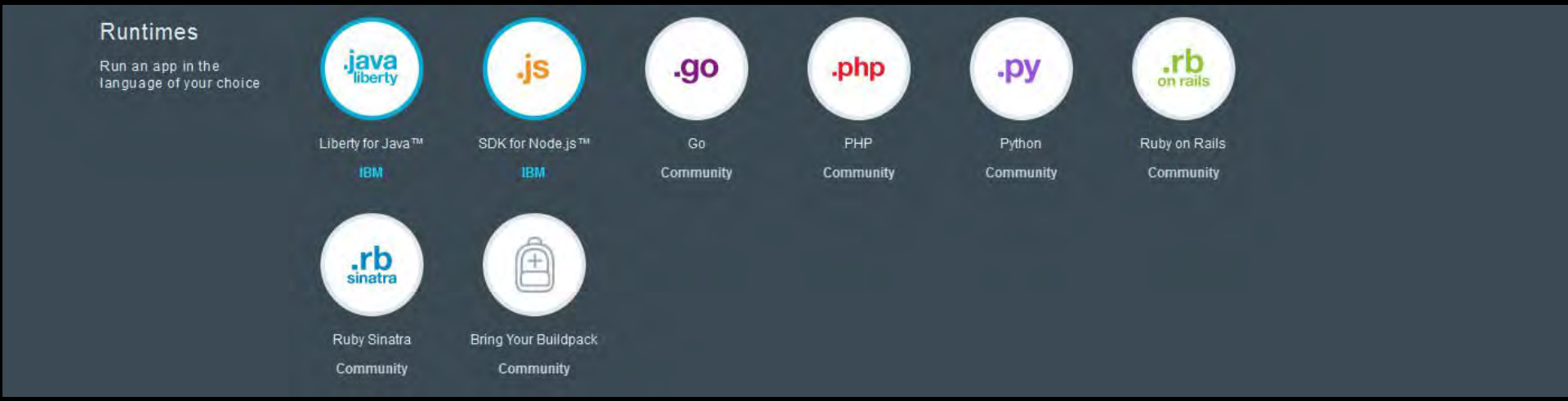

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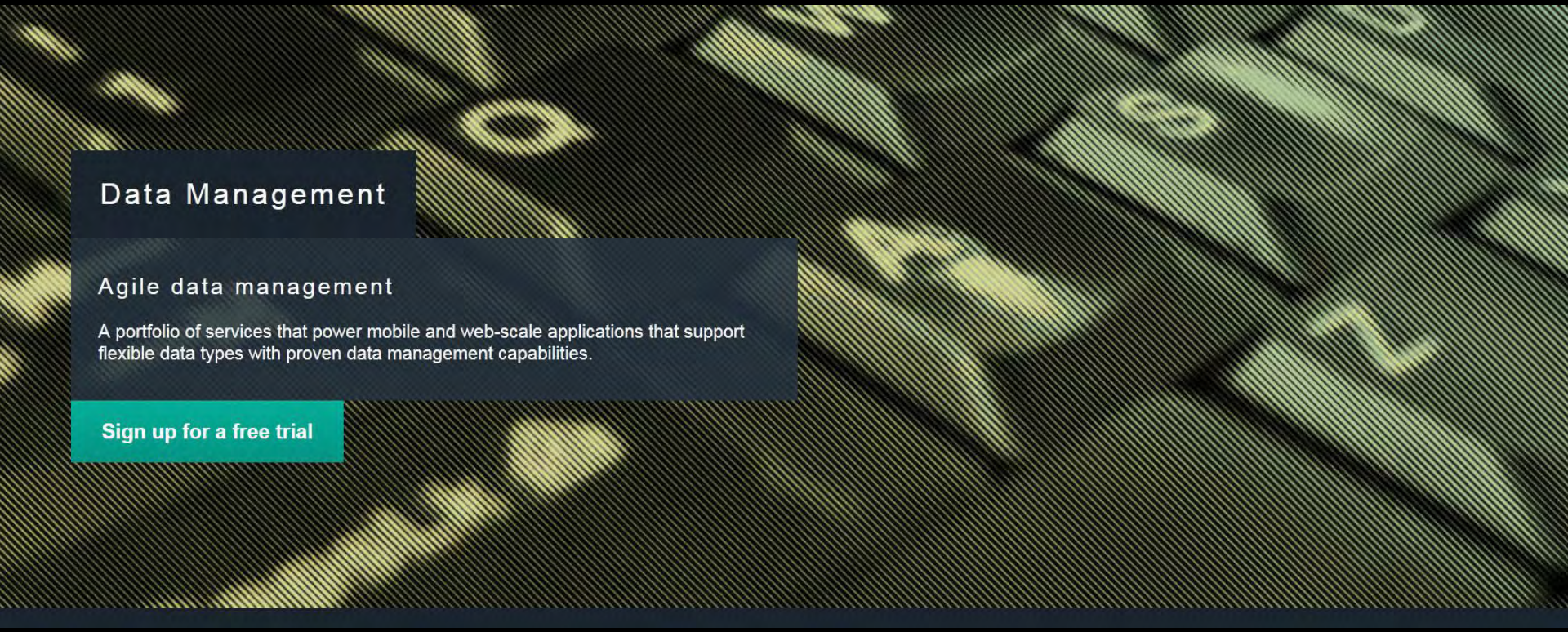

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IBM Bluemix

Category

- [x] Watson
- [ ] Mobile
- [ ] DevOps
- [ ] Web and Application
- [ ] Integration
- [x] Data Management
- [x] Big Data
- [ ] Security
- [ ] Business Analytics
- [ ] Internet of Things

Support

- [ ] IBM
- [ ] Third Party
- [ ] Community
- [ ] Experimental
- [ ] Beta

Data Management

Agile data management and refinement

- Cloudant NoSQL DB — IBM
- DataWorks — IBM
- Object Storage — IBM *BETA*
- Object Storage (v2) — IBM *BETA*
- SQL Database — IBM
- ClearDB MySQL Data... — Third Party
- ElephantSQL — Third Party
- MongoLab — Third Party
- Redis Cloud — Third Party
- mongodb — Experimental
- mysql — Experimental
- postgresql — Experimental
- Probabilistic Match — Experimental

Big Data

Harness the power

- BigInsights for Hadoop — IBM
- dashDB — IBM
- Geospatial Analytics — IBM
- IBM Analytics for Hadoop — IBM *BETA*
- IBM Insights for Twitter — IBM *BETA*
- Time Series Database — IBM

Data Management

Agile data management

Cloudant NoSQL DB
IBM

SQL Database
IBM

ClearDB MySQL Data...
Third Party

ElephantSQL
Third Party

MongoLab
Third Party

Redis Cloud
Third Party

mysql
Community

postgresql
Community

Big Data

Harness the power

Analytics Warehouse
IBM

Geospatial Analytics
IBM *BETA*

IBM Analytics for Hadoop

View More

Time Series Database
IBM

Security

Build security into application design

AppScan Dynamic An...
IBM *BETA*

AppScan Mobile Analy...
IBM *BETA*

Single Sign On
IBM *BETA*

IBM Bluemix

Mobile

Quickly get started with your next app

Mobile Application Sec...

IBM

Mobile Data

IBM

MobileQualityAssurance

IBM

Push

IBM

Twilio

Third Party

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- Concept Expansion — IBM *BETA*
- Concept Insights — IBM *BETA*
- Language Identification — IBM *BETA*
- Machine Translation — IBM *BETA*
- Message Resonance — IBM *BETA*
- Personality Insights — IBM
- Question and Answer — IBM *BETA*
- Relationship Extraction — IBM *BETA*
- Speech To Text — IBM *BETA*
- Text to Speech — IBM *BETA*
- Tradeoff Analytics — IBM *BETA*
- Visual Recognition — IBM *BETA*
- Cognitive Commerce™ — Third Party
- Cognitive Graph — Third Party
- Cognitive Insights™ — Third Party

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Computer Science / Software Engineering Topics
IBM Bluemix Services Alignment

Key Skills Areas	Key Services on IBM Bluemix
Programming; Phyton, Ruby, JavaScript, HTML & CSS	
Database: No SQL, SQL	
Algorithms	
Mobile Development	
Security	

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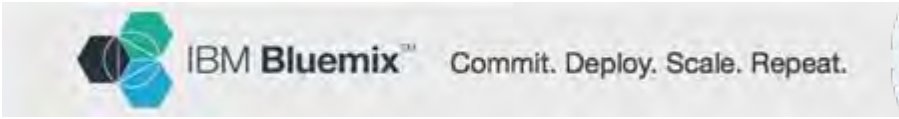
Computer Science / Software Engineering Topics

IBM Bluemix Services Alignment



Key Skills Areas

Programming; Phyton, Ruby, JavaScript, HTML & CSS

Database: No SQL, SQL

Algorithms

Mobile Development

Security

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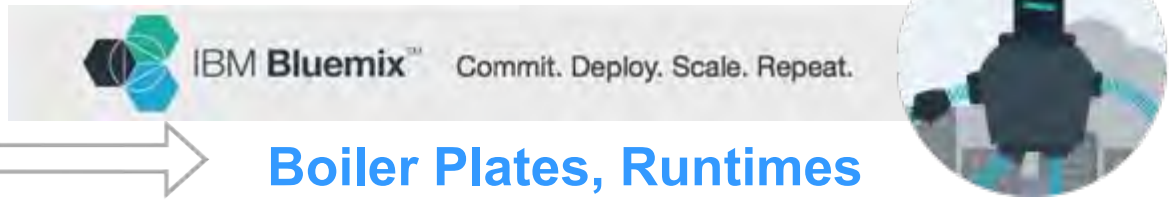
Computer Science / Software Engineering Topics
IBM Bluemix Services Alignment



Key Skills Areas

Programming; Phyton, Ruby, JavaScript, HTML & CSS → **Boiler Plates, Runtimes**

Database: No SQL, SQL → **Database Management**

Algorithms → **Watson / Cognitive Services**

Mobile Development → **Mobile Services**

Security → **Security Services**

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Computer Science / Software Engineering Topics
IBM Bluemix Services Alignment

Key Skills Areas

Programming; Phyton, Ruby, JavaScript, HTML & CSS

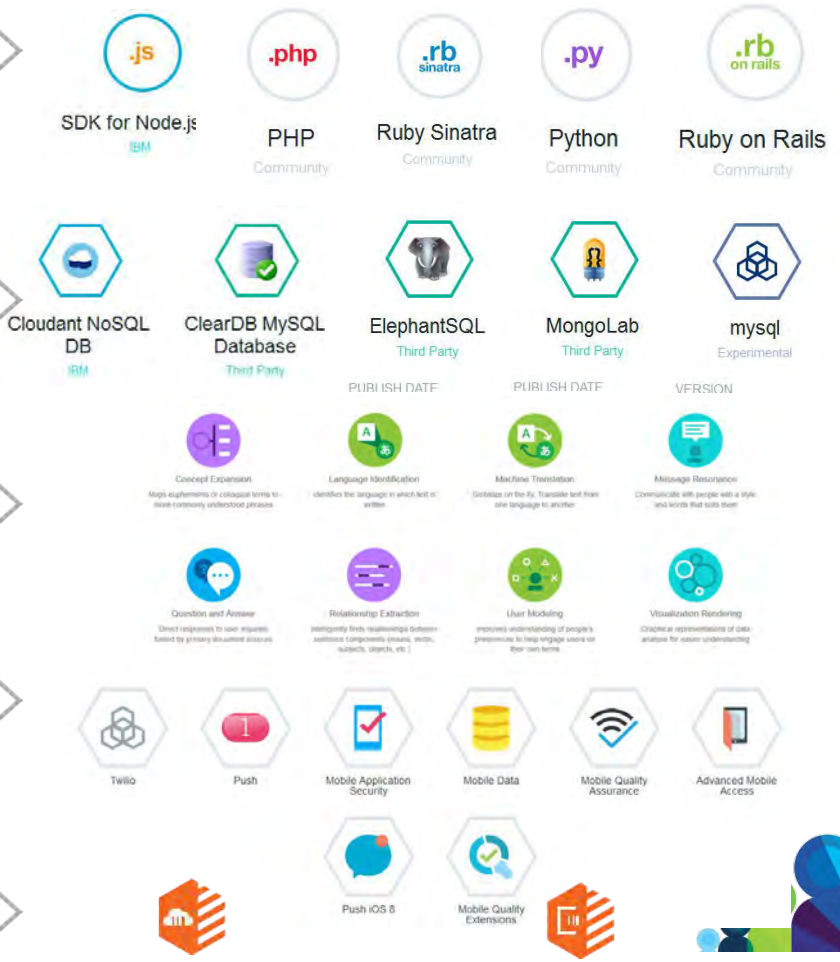
Database: No SQL, SQL

Algorithms

Mobile Development

Security

Key Services on IBM Bluemix



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IBM Academic Initiative / Cloud Ecosystem

Next Steps

1. **Course / Curriculum Assessment**
   Review course plans / syllabi

2. **Candidate Technology Alignment**
   Identify candidate technology / capability sets
   Courseware asset recommendations

3. **Faculty / Instructor Briefing**
   Deliver overview of tools and assets available
   Prioritize focus on candidate assets, Brainstorm session

4. **Faculty Workshops**
   Hands on experience with the tools for faculty
   Collaborative review of exercises, tutorials

5. **Co-Sponsored Guest Talks & Student Workshops / Hackathon**
   On premise guest talks, virtual office hours, Hackathons

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