



Willkommen beim #GWAB 2014!

Entwicklung mit Java, Spring & NoSQL auf Windows Azure

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Lokale Sponsoren:



A „realistic“ Scenario;)

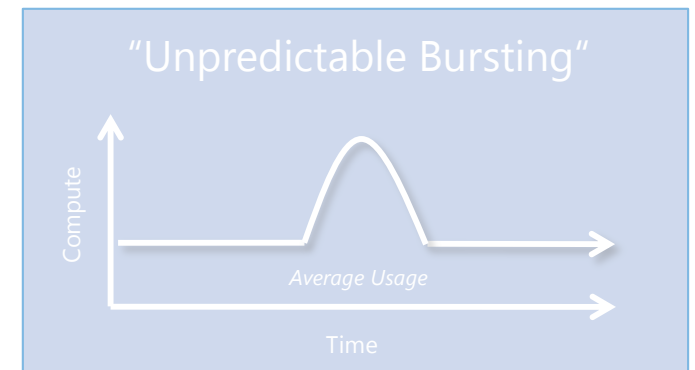
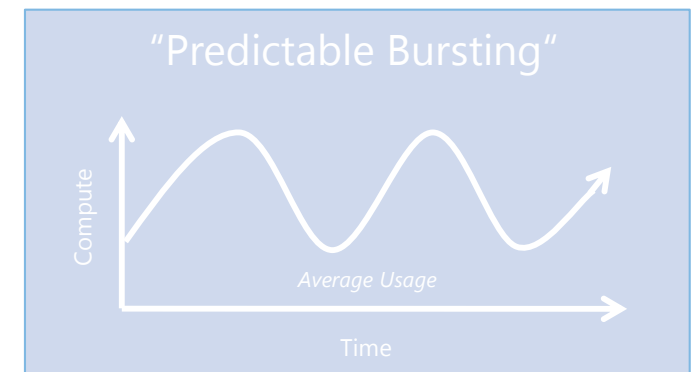
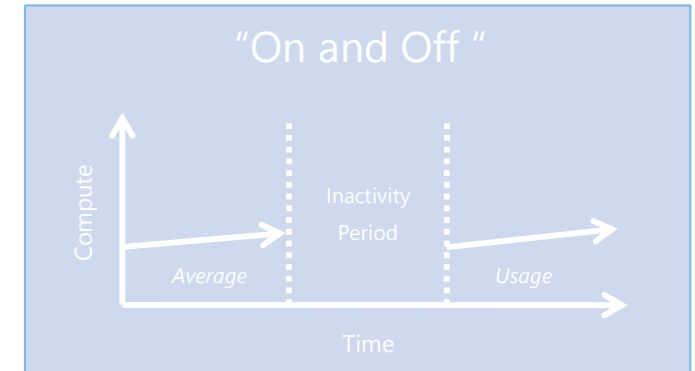
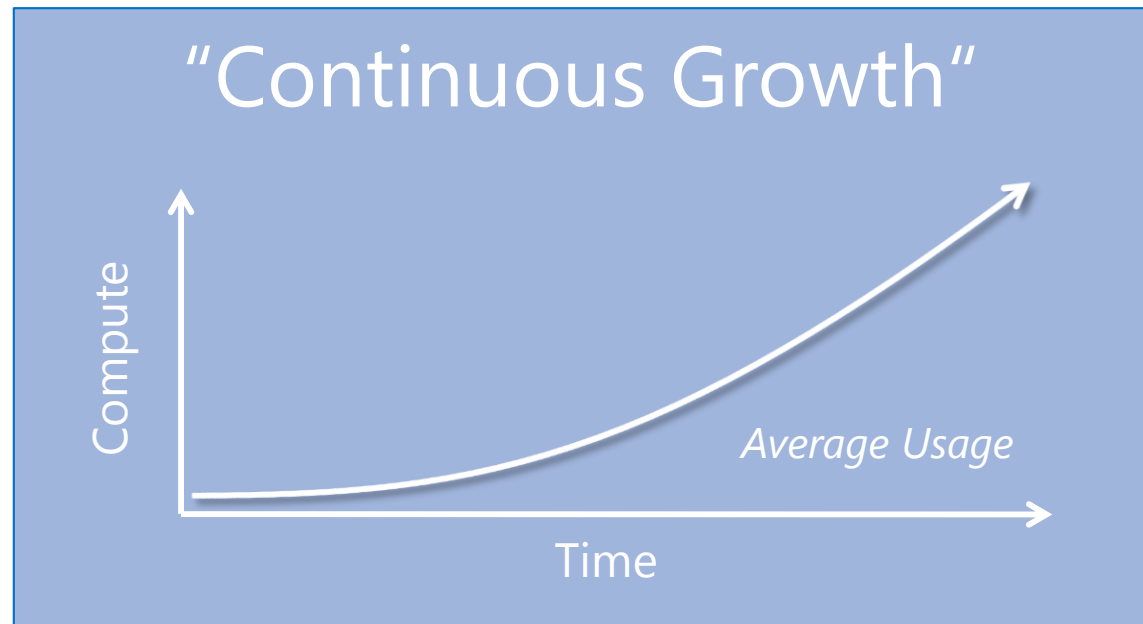


Startup Company & Book Store

- „Innovative“ 😊 start-up
 - Become the next Amazon for professional books
 - But we don't have lot's of money
- Experienced in development with Java & Spring
 - Existing on-premise implementation started
 - Leveraged infrastructure: Spring Framework 3.x, MongoDB
- *We need to be prepared for steady growth*
 - *Without big investments upfront!*

Decision for Public Cloud Platform

- Typical usage patterns for cloud
 - On-Off, bursting scenarios, continuous growth
- In our example-case:
 - grow our resources over time with consumption



Platform-as-a-Service...

- „Time-2-market“ is key for us
 - DevOps principles are success enabler!
- We can't afford to manage „machines“
 - Managing virtual machines and OS means lots of effort & time
- Focus must be on application
 - Leverage application building blocks
 - Continuous shipment of functionality
 - Cloud platform will need to manage Virtual Machines and OS for us!!



PaaS

Platform-as-a-Service

build

Demo - Jürgen

Sample Application – Java Webapp

Building on top of Windows Azure...



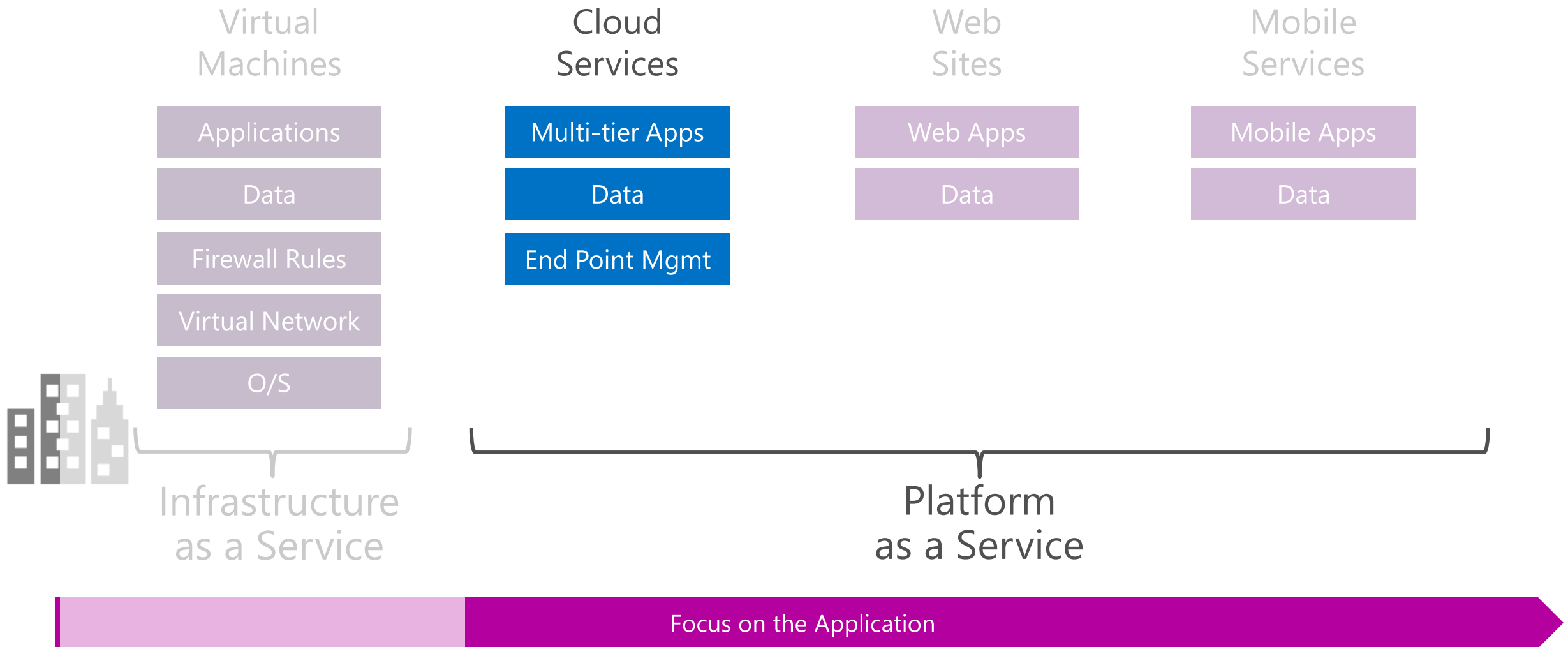
Azure – PaaS and Open!!

- SDKs and tools for:
 - .NET, PHP, Java, Python, node.js
 - Mobile platforms incl. iOS, Android, WP7
 - Eclipse, Visual Studio etc.
- Most released as OSS
 - Codeplex & github are primary sources
- Generally
 - All also available as HTTP REST
 - Integration of any platform possible

The image shows two overlapping browser windows. The top window is the Windows Azure Developer Center website, displaying navigation links (HOME, PRICING, DEVELOP, MANAGE, COMMUNITY, SUPPORT, ACCOUNT), a 'Free trial' button, and a 'Centers' sidebar with links for mobile, .net, node.js, java, php, python, and other. The bottom window is a GitHub repository page for 'WindowsAzure / azure-sdk-for-python', showing the repository name, a 'Clone in Windows' button, and a commit history table.

name	age	message
src	3 months ago	One missing spot renaming windowsazure->azure [DinoV]
test	3 months ago	Add more tests [DinoV]

Azure-Environments for Running Applications



Migration Strategy to Azure

1. Migrate the database
2. Front-end tier migration
 1. Get rid of assets stored on local machine
 2. Deal with session state – adopt Cache with memcached
 3. Leverage identity management services from Azure
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NoSQL on Azure...



Persistence Options on Azure (examples)



MongoDB and Windows Azure

- Document DB
 - JSON-based serialization
 - Similar to OO-based data modeling
 - Queries are SQL-alike
 - Similar to RavenDB or CouchDB
- MongoDB on Azure
 - MongoLabs – MongoDB-as-a-Service
 - MongoDB in Azure VM – full control, but maintained by yourself

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{
  "Price" : 6.99,
  "ReleaseDate" : ISODate("1985-01-01T15:00:00Z"),
  "Reviews" : [
    {
      "name" : "David",
      "comments" : "Best movie ever!",
      "rating" : 5
    },
    {
      "name" : "Jeana",
      "comments" : "Ever seen a movie like this? Not since breakfast...",
      "rating" : 5
    }
  ],
  "Title" : "Fletch"
}
```



Demo - Mario

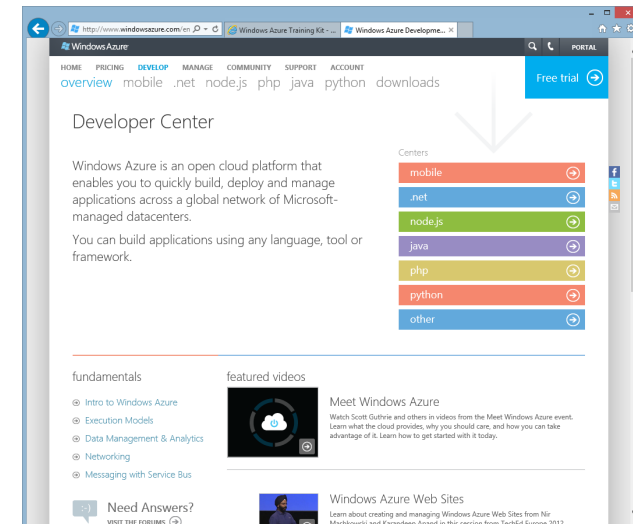
NoSQL on Azure – VM Depot Vorlagen, MongoLab

Java Apps on Azure Cloud Services (PaaS)...



Windows Azure & Java

- Java SDK for Windows Azure
 - Encapsulates access to application building block services
 - Access to hosting-environment configuration
 - Open source – available on GitHub
- Tooling
 - Eclipse Plugins for Windows Azure development
 - Windows Azure Emulator for first local testing & evaluation



Front-end #1: No dynamic content locally

- Long-term persistence of files → BLOB storage
 - Remember: compute instances are automatically managed
- What do we need to do?
 - Store all files (e.g. images, excerpts as PDF...) for books in Azure BLOB storage
 - Use CDN for reduced latency of delivery to end users
 - Replace URLs to files in database to CDN-content URLs

Demo - Jürgen

MongoDB Setups with MongoVUE: On-premises
and Cloud

Front-End #2: Deal with Session State

- Two options for session state:
 - Sticky sessions
 - Use Azure distributed caching for better scalability
- We start with sticky sessions (simplicity)
- Our future road map (for this scenario;): distributed caching
 - Configure Azure co-located caching
 - Co-located caches run on compute instances of your own app
 - Access cache using memcached in your app
 - Configure memcached session state provider for Tomcat

Front-End #3: Identity Management

- Leverage claims-based, federated authentication
 - Allows us to „delegate“ authentication to proven identity providers
- For our app: integrate with Azure ACS
 - Create an Azure Access Control Service namespace
 - Configure a „relying party“ in Azure ACS for our front-end application
 - Create X.509 certificate for token signatures
 - Configure servlet filter based on Azure ACS Java library
- Note: AuthZ needs to be done in our application!

Get to a deployment on Azure...

- Add Azure deployment project
 - Configure azure deployment project (caching, communication endpoints etc.)
- Deploy and test in emulator
- Deploy to Windows Azure
 - Upload Java runtime version to blob storage
 - Configure app server locally – upload configuration to BLOB storage
 - Upload your Azure deployment packages to Azure staging & test in staging
 - Staging OK → VIP SWAP in Azure to production environment

Demo - Mario

Windows Azure Eclipse Plugin - Deployment

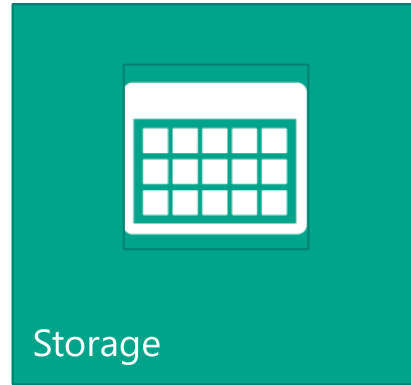
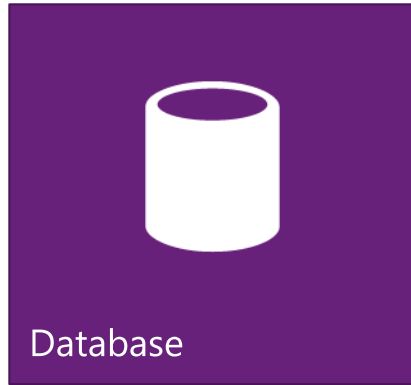
Summary



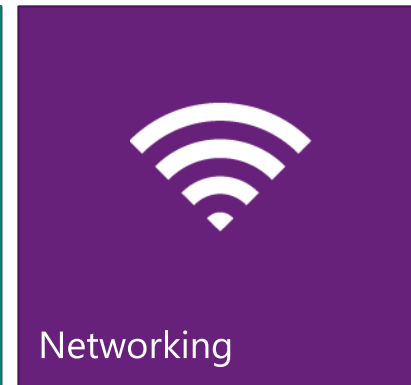
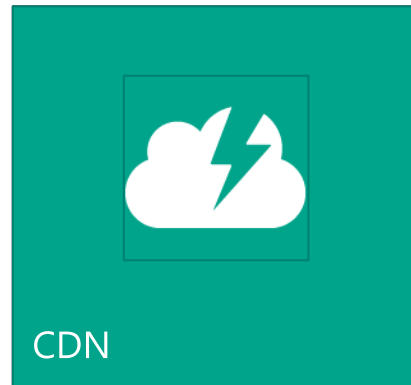
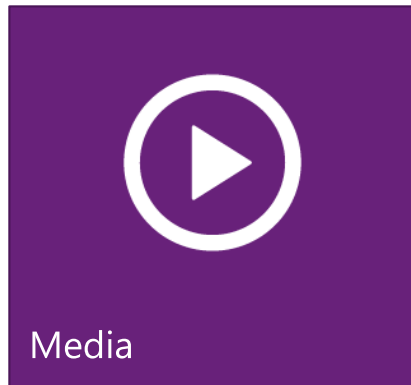
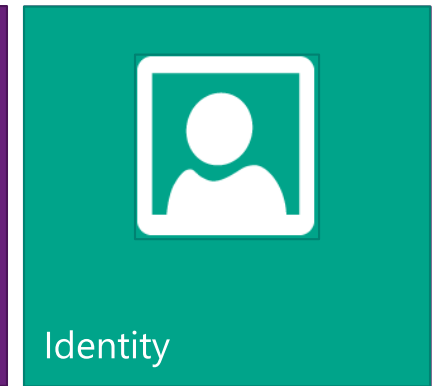
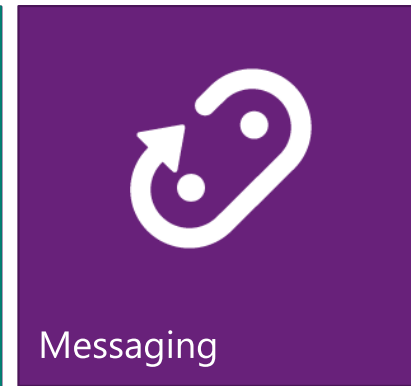
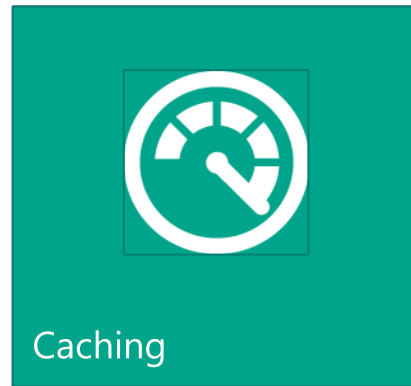
Migration Azure PaaS - Summary

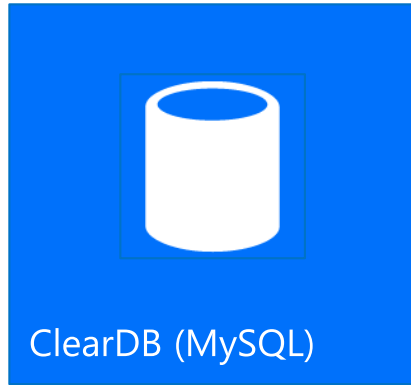
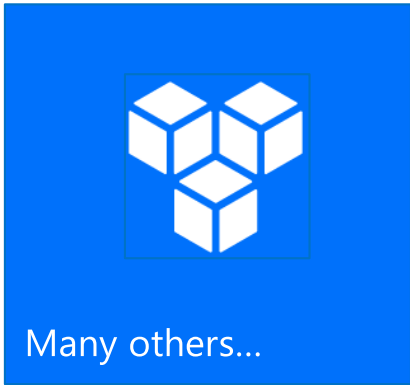
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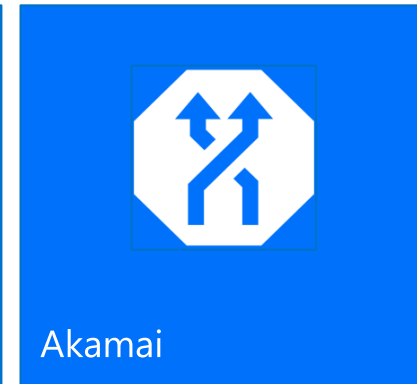
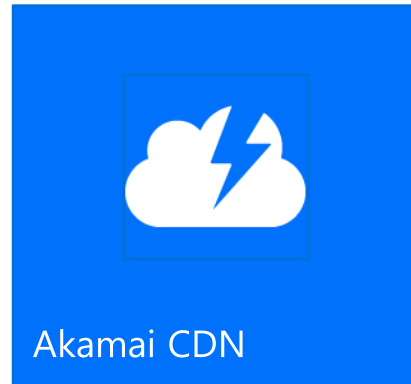
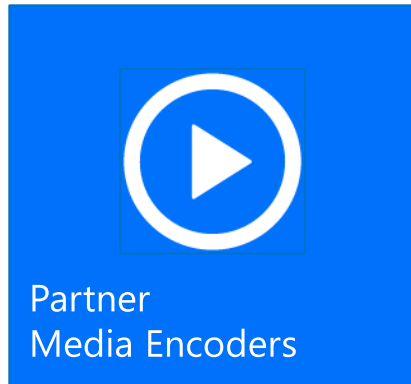
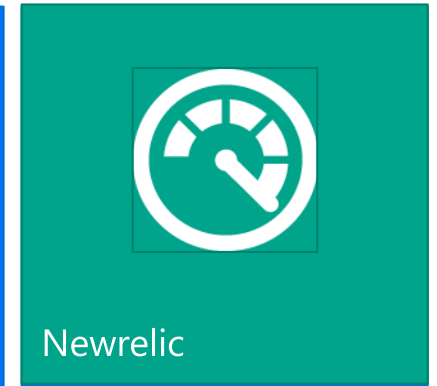
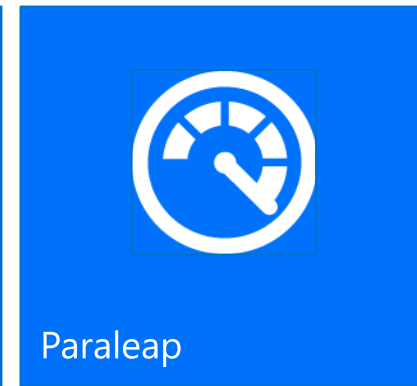
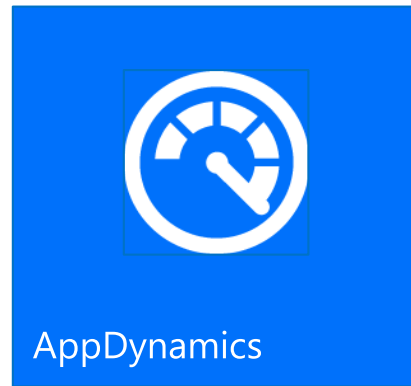
Building Blocks
we have used...





3rd-Party Building we have used...

(available blocks are just examples)



Links and Resources

- Windows Azure
 - www.windowsazure.com
- Windows Azure SDK for Java
 - <https://github.com/WindowsAzure/azure-sdk-for-java>
- Eclipse Tools for Windows Azure
 - <http://msdn.microsoft.com/en-us/library/windowsazure/hh694271.aspx>
- Memcached for Tomcat
 - <http://code.google.com/p/memcached-session-manager/>
- Spring JPA and MongoDB
 - <http://static.springsource.org/spring-data/data-mongodb/docs/current/reference/html/>
- MongoLabs
 - <https://mongolab.com/>
- Book Store Demo GitHub Repository
 - <https://github.com/JMayrbaeurl/GotoZurich2013JavaOnAzureSample>
 - <https://github.com/JMayrbaeurl/azure-web>

Thank You!!

<http://blogs.msdn.com/mszcool>

<http://www.codefest.at/author/jm.aspx>