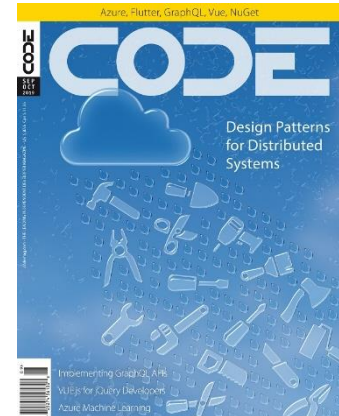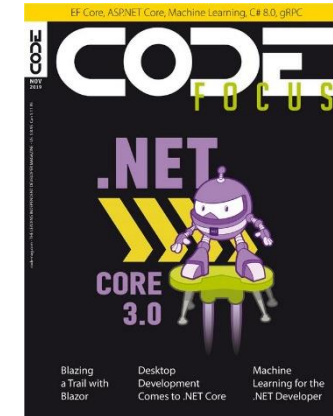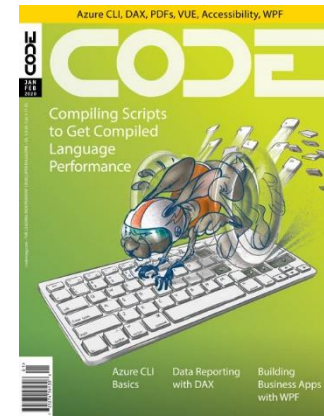# State of .NET Online
Microsoft Azure Cloud

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CODE Magazine & Consulting

About the Presenter

- **Markus Egger**
- President and Chief Software Architect
  EPS Software Corp. (dba CODE Consulting)
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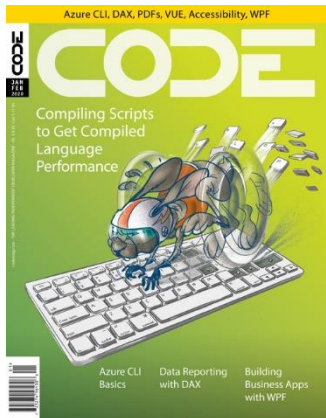 https://www.codemag.com/Staffing

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State of .NET Online

- Due to the Coronavirus Crisis, State of .NET has turned from "sometimes online" to "an online series"

- Expect monthly online events going forward
  - Future topics: Blazor, Cognitive Services, DevOps, Other Clouds,…
  - Let us know what you are interested in!

- Note that live-events will also continue to be scheduled at various locations once that is possible again

Agenda

- Overview of Azure and what to expect
- Some Azure Services every developer should know
- Some off-the-beaten path concrete examples

Azure Overview

Let's Start at the Beginning...

- I know a lot of people already have Azure experience...
- ...but especially with the current crisis, there are a lot of people that are making the move to Azure now in a hurry

What is Azure?

- Azure is an open and flexible cloud platform that enables you to quickly build, deploy and manage applications across a global network of Microsoft-managed datacenters.

- You can build applications using any language, tool, or framework. And you can integrate your public cloud applications with your existing IT environment.
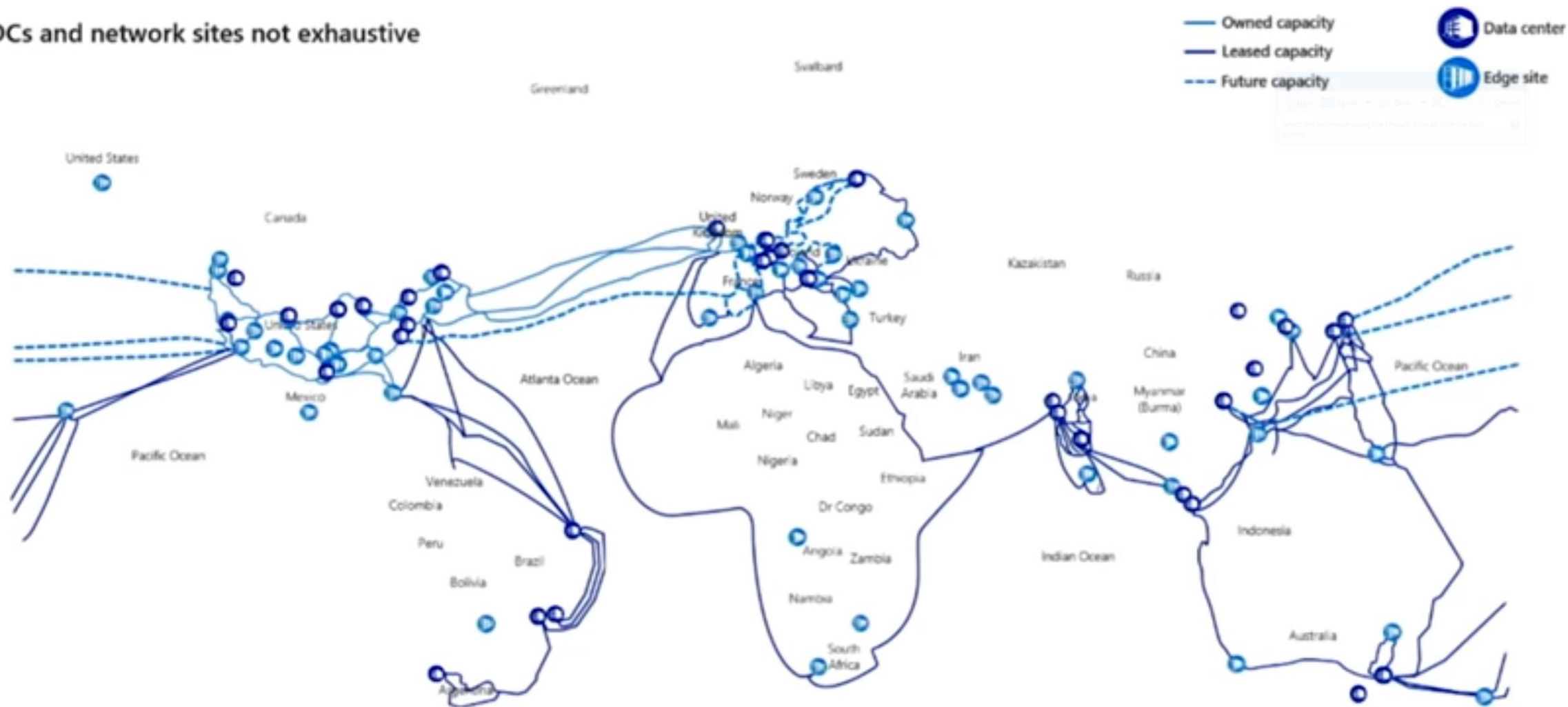
Quincy

Cheyenne

Dublin

Amsterdam

61

Azure regions

More than AWS &
Google combined

Azure inter-DC dark fiber backbone

Unbelievable Scale

- It is difficult for us "mere mortals" to understand the scale at which these cloud data centers operate...

- ...and how fast more and more are made

- Aspects such as physical security are not to be underestimated

- Note: This is not just true for Microsoft, but Microsoft is at the forefront to this!

>95%

of Fortune 500
use Microsoft Azure

Second (or Third?) Push of Adoption

- We are currently in another push of Cloud Adoption
  - There already was a lot of momentum, but the current crisis woke up many of the hold-outs
- We saw an initial surge towards the Cloud from companies that were always excited about the Cloud idea
- We are now seeing a second surge of those companies that were initially skeptical and took a "wait & see" approach
- We are now seeing a push from those who didn't envision moving but are now "nudged" along by the Coronavirus crisis

Any Language, any Operating System

- You can run Windows and Linux workloads on Azure

- You can use any language or stack to develop for Azure

- You can target various managed services that way…

- …and you can even run different types of virtual machines

Activate your MSDN Benefits...

3 VMs for **16** hrs a day

80 VMs for **20** hour load test

Up to **100** web sites + DB

Up to **$150** per Month

33% off Dev/Test VMs

25% off Other Dev/Test

89 Countries

Related: Azure Stack

- Azure Services in your own data center and on your own devices
- Reuse the same technologies without moving to a Microsoft Data Center
- Great for disconnected scenarios

Related: Cloud vs. Edge

- Azure Services in your own data center and on your own devices
- Reuse the same technologies without moving to a Microsoft Data Center
- Great for disconnected scenarios

Azure Concepts: Hosting vs Services

- Hosting
  - Code you write and deploy to Azure
  - Azure runs the code you wrote
    - ASP.NET MVC applications, etc.

- Services
  - Code Azure provides for you to run
  - You provide data to Azure services
    - Blob storage, SQL Azure, etc.

Getting Started with the Azure Portal

- A quick lap around https://portal.azure.com

- In the Azure Cloud, most services are available through one unified portal

- Note: It is also possible to script the things available through the portal's user interface
  - https://codemag.com/Article/2001021/Azure-CLI

Concrete Examples
a.k.a. "Azure Services Every Developer Should Know"

#1: App Services

- Web Apps, Mobile Apps, API Apps, etc.
  - Think "I want to run a web site on Azure"
- Fully managed: OS patching, high availability, scaling
- First class Visual Studio integration

#2: SQL Server Databases

- There are several different ways to host an SQL Database right on Azure
- The most "native" is to run an "SQL Azure" database
  - This is a service that is fully managed for you. You just create the database and tables you want
  - This is a cloud-optimized version of SQL Server that you do not have to maintain
- You can also run "SQL Server on Azure"
  - This is essentially a pre-configured virtual machine that you can host your database on
  - It's much like your local SQL Server, but hosted in the cloud for you

#3: Azure Storage

- Blobs, tables, queues & files
- Auto replicated & backed up
- Optional Geo-replication
- Think of this as a "limitless, high-performance, high-reliability file system in the cloud"
- Different tiers are available for cost-efficient storage

#4: Azure Functions

- Serverless
  - Which most def. does NOT mean "no servers". It just means you do not have to worry about the servers involved.
  - You will never be exposed to server provisioning or management
  - You simply say "Go ahead, Cloud!... Run this stuff of mine!"
- Event driven off HTTP, Queues, Timers, etc.
  - Great for simple jobs & workers
- Pay for resource usage (CPU & memory)

#5: Azure Kubernetes Service

- Managed, serverless Kubernetes Service
- Great service to deploy and orchestrate container deployments
- Now also supports Windows Containers
- Azure Arc-enabled Kubernetes supports spanning clusters across data-centers, multi-cloud, and Azure Stack
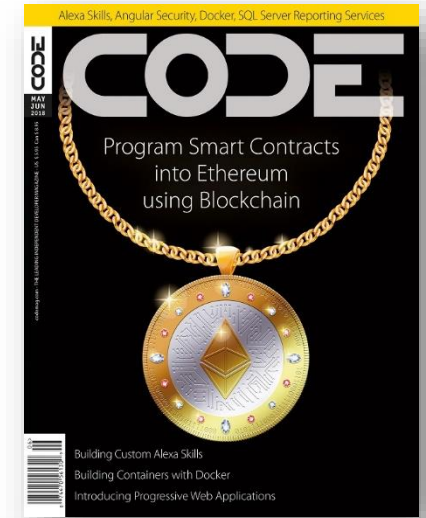
#6: Cosmos DB

- NoSQL Database specifically engineered for the cloud
- Limitless scale
- Fully managed
- Serverless
- Multi-APIs (MongoDB, Casandra,...)

#7: Static Web Apps

- Many modern web apps do not require server-side processing
  - Examples: Angular, Vue,…
- Azure Static Web Apps provide a streamlined environment for hosting such sites
- Tight GitHub integration

#8: Microsoft Cognitive Services

- Vision
- Speech
- Language
- Knowledge
- Search
- https://azure.microsoft.com/en-us/try/cognitive-services/

- https://www.codemag.com/Article/1805031/Identify-Faces-with-Microsoft-Cognitive-Services
- https://www.codemag.com/Article/1807031/Identify-Voices-with-Microsoft-Cognitive-Services

Thinking About Security

- Security worries seem to always come up before a company embraces the Cloud
- At CODE, we recently suffered a major cyber-attack that gave a perfect example of why the opposite is true
  - All our servers in our own data center were completely wiped
  - All our cloud-based infrastructure was completely safe

Other Announcements
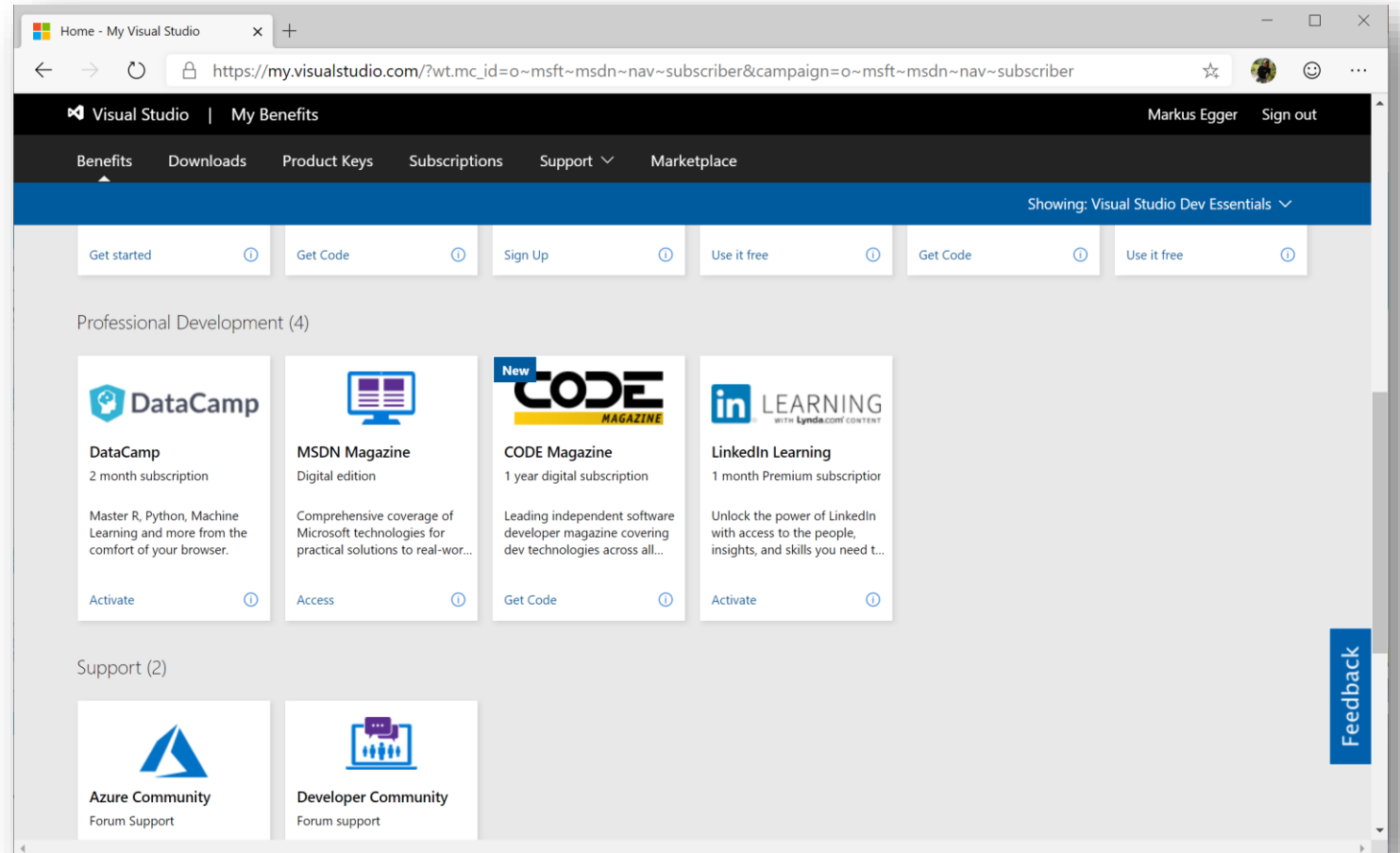
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Next Event:
Blazor Web Development
June 24th

Q&A

Contact us with questions!

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