

State of .NET Online

Amazon Web Services (AWS)

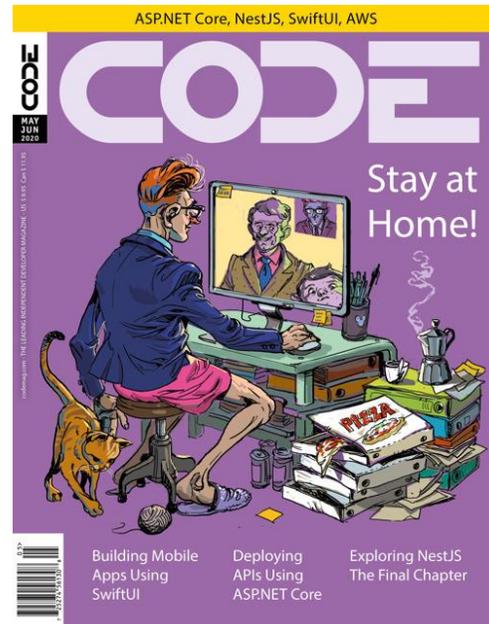
Markus Egger

President and Chief Software Architect

CODE Magazine & Consulting

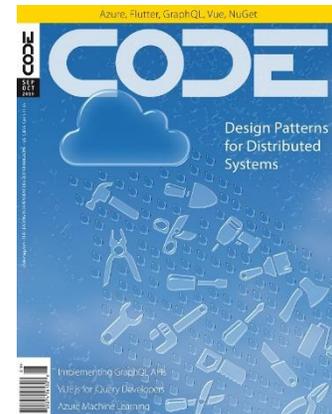
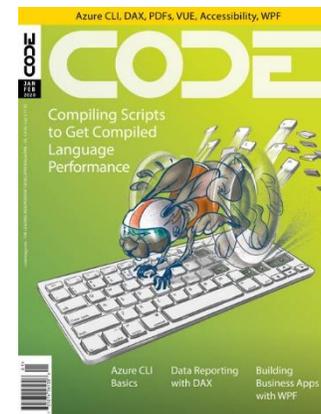
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About the Presenter

- **Markus Egger**
- President and Chief Software Architect
EPS Software Corp. (dba CODE Consulting)
- Publisher – CODE Magazine
- International Author and Speaker
- Microsoft RD (Regional Director)
- Microsoft MVP since 1995
- [Email: markus@eps-software.com](mailto:markus@eps-software.com)
- Twitter: @markusegger



About CODE & EPS Software Corp.

“Helping People Build Better Software”

- Custom Software Development, Training, Mentoring,...
- Web, Cloud, Mobile, Desktop, Serverless, Databases,...
- User Interface and Interaction Design
- Project Rescue, Legacy Conversions (VB, VFP, Access, etc.)
- Development Team Staff Augmentation
- Microsoft Certified Partner



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<https://www.codemag.com/Staffing>



Event Survey – Win \$100!

- Complete this very short 10 question survey for a chance to win a \$100 Amazon Gift Card!
- <https://tinyurl.com/aws4devs>
- Survey must be completed by 11:59pm EDT on 7/31/2020 to be eligible to win!

CODE Magazine - Amazon Web Services (AWS) for Developers Webinar Survey

Thanks for attending! Complete these 10 simple questions to be eligible to win a \$100 Amazon Gift Card. It won't take but a minute or so. Your survey must be completed by 11:59pm EDT (GMT-4) on 7/31/2020 to be eligible to win! One entry per person please. Drawing will occur and the individual winner notified by 8/03/20.

Yes, we still want to hear from you if you watch the recorded video after 7/31/20. :-)

* Required

1. Full Name *

2. Company Name *

3. Email Address (valid email address required for Amazon Gift Card drawing) *

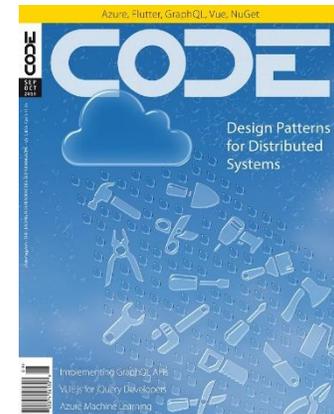
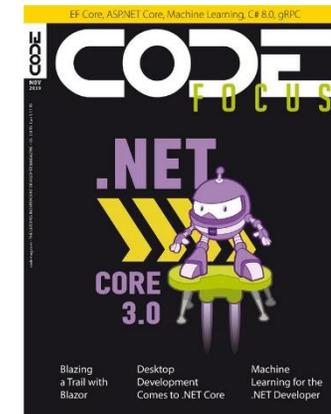
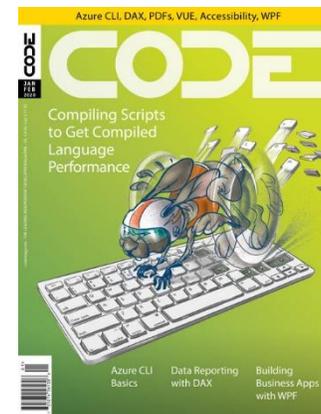
Agenda

- General Overview of AWS and what to expect
- Some aspects from a Microsoft developer's POV
- Some AWS features every developer should know
- Development examples
- This is a high-level overview, but we are here to answer more questions!



Co-Presenter

- **Philipp Bauer**
- Senior Software Developer
EPS Software Corp./ CODE Consulting
- Resident AWS "go-to-guy" 😊
- Email: pbauer@eps-software.com



In the Chat: Martin Beeby

- Developer Advocate for AWS
- His focus is on .NET
- <https://thebeeb.net/>
- Twitter: @thebeeb



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: Cognitive Services, DevOps, .NET 5, Other Clouds, Linux,...
 - 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

A photograph of a server room with blue lighting. The room is filled with rows of server racks, each containing numerous server units. The racks are connected by a complex network of cables. The lighting is predominantly blue, creating a futuristic and high-tech atmosphere. The perspective is from a low angle, looking down a central aisle between the racks.

AWS Overview

What is AWS?

- Amazon's Cloud Offering
 - Launched in March of 2006
- Leading Cloud Provider (ahead of Azure)
 - Amazon has about a third of the global cloud market
 - Over a quarter of the world's developers use AWS
- "General Purpose Cloud"
- Massive in Scale
- Notable customers include Netflix, GE, airbnb, the US Government, Lyft, ...
 - <https://aws.amazon.com/solutions/case-studies/all/>

Regional expansion

 First 5 years: 4 regions

N. California 

 N. Virginia

Ireland 

Singapore 

Regional expansion

● First 5 years: 4 regions

● Next 5 years: 7 regions

AWS GovCloud West
Oregon
N. California

N. Virginia

Ireland

Frankfurt

Beijing

Tokyo

Singapore

São Paulo

Sydney

Regional expansion

- First 5 years: 4 regions
- Next 5 years: 7 regions
- 2016–2020: 13 regions and 1 local region
- Coming soon: 3 regions



AWS Global Infrastructure

24 geographical regions, 1 local region, 76 availability zones, 200+ POPs

Region & Number of Availability Zones (AZs)

GovCloud (US)

US-East (3), US-West (3)

US West

Oregon (4)

Northern California (3)

US East

N. Virginia (6), Ohio (3)

Canada

Central (3)

South America

São Paulo (3)

Africa

Cape Town (3)

Europe

Frankfurt (3), Paris (3),

Ireland (3), Stockholm (3),

London (3), Milan (3)

Middle East

Bahrain (3)

Asia Pacific

Singapore (3), Sydney (3),

Tokyo (4), Osaka-Local (1)*

Seoul (3), Mumbai (3),

Hong Kong (3)

China

Beijing (2), Ningxia (3)

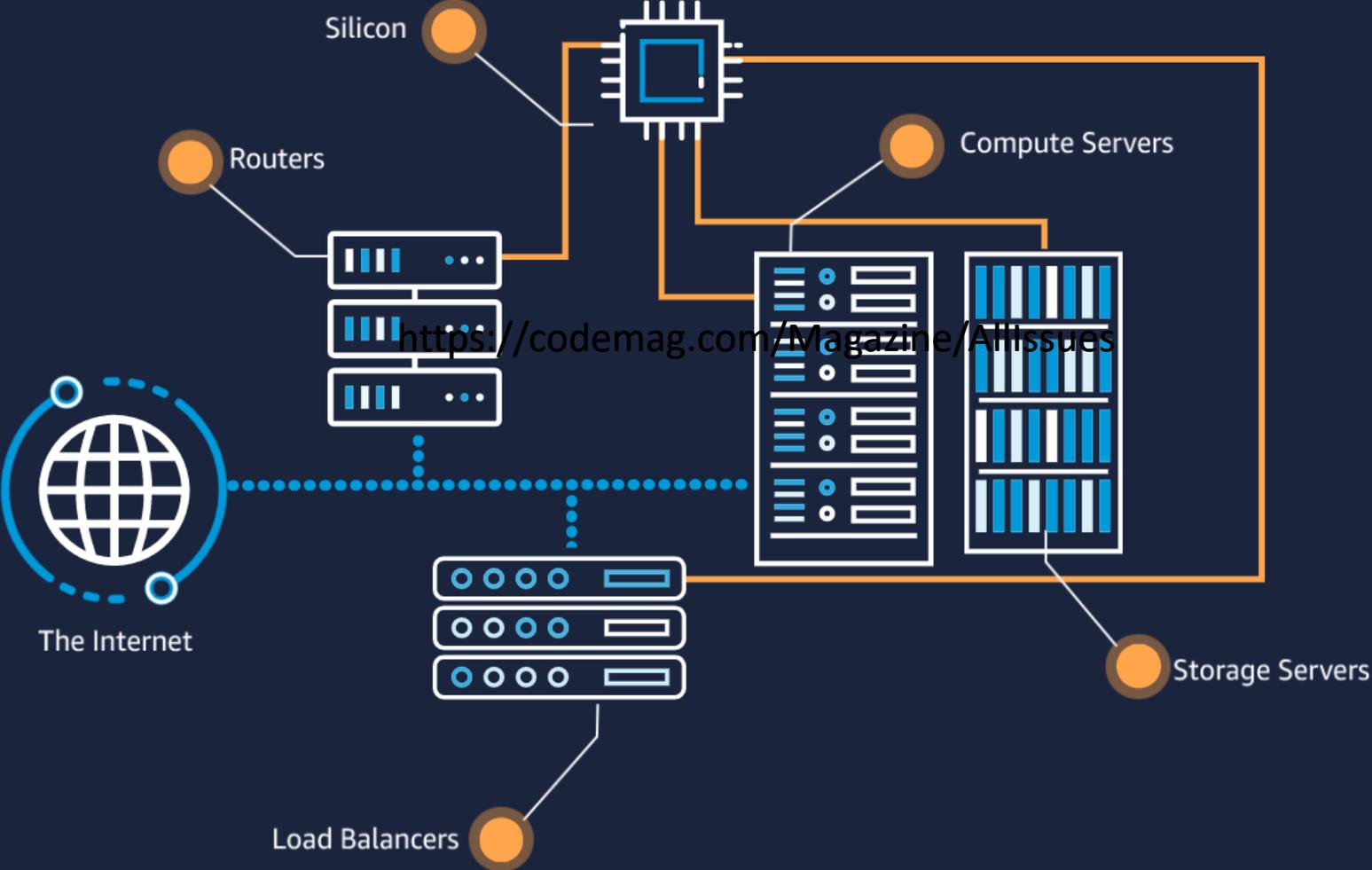


Announced Regions

Three Regions and 9 AZs in Indonesia, Japan, and Spain

* Available to select AWS customers who request access. Customers wishing to use the Asia Pacific (Osaka) Local Region should speak with their sales representative.

Custom Hardware



Why customers choose AWS

Most experience

13

years helping millions of customers

Global reach & high availability

76

availability zones spanning 24
geographic regions

Security & compliance

203+

security features

Customer obsession
& innovation

165+

service offerings

Capable of delivering up to

80,000 IOPS/
instance

with consistency

Improve TCO

77

price reductions since 2006

Machine learning

81%

of all deep learning is running on AWS¹

Ecosystem

4,500

software listings from 1,400 ISVs

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 a statement that is true for multiple cloud providers, and especially true for Amazon (AWS) and Microsoft (Azure)

Gartner Magic Quadrant, Worldwide, 2019



Source: Gartner (July 2019)

Cloud Market Share Comparison

Worldwide cloud infrastructure spending and annual growth
Canalys estimates, Q4 2019

Cloud service provider	Q4 2019 (US\$ billion)	Q4 2019 market share	Q4 2018 (US\$ billion)	Q4 2018 market share	Annual growth
AWS	9.8	32.4%	7.3	33.4%	33.2%
Microsoft Azure	5.3	17.6%	3.3	14.9%	62.3%
Google Cloud	1.8	6.0%	1.1	4.9%	67.6%
Alibaba Cloud	1.6	5.4%	1.0	4.4%	71.1%
Others	11.6	38.5%	9.3	42.4%	24.4%
Total	30.2	100.0%	22.0	100.0%	37.2%



Note: percentages may not add up to 100% due to rounding
Source: Canalys Cloud Channels Analysis, January 2019

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 AWS
- You can use any language or stack to develop for AWS
- You can target various managed services that way...
- ...and you can even run different types of virtual machines

AWS for Developers

AWS from 30,000 feet

Compute

- EC2
- Lightsail [↗](#)
- Lambda
- Batch
- Elastic Beanstalk
- Serverless Application Repository
- AWS Outposts
- EC2 Image Builder

Containers

- Elastic Container Registry
- Elastic Container Service
- Elastic Kubernetes Service

Storage

- S3
- EFS
- FSx
- S3 Glacier
- Storage Gateway
- AWS Backup

Database

- RDS
- DynamoDB
- ElastiCache
- Neptune
- Amazon Redshift
- Amazon QLDB
- Amazon DocumentDB
- Managed Cassandra Service

Migration & Transfer

- AWS Migration Hub
- Application Discovery Service
- Database Migration Service
- Server Migration Service
- AWS Transfer for SFTP
- Snowball
- DataSync

Networking & Content Delivery

- VPC
- CloudFront
- Route 53
- API Gateway
- Direct Connect
- AWS App Mesh
- AWS Cloud Map
- Global Accelerator [↗](#)

Developer Tools

- CodeStar
- CodeCommit
- CodeBuild
- CodeDeploy
- CodePipeline
- Cloud9
- X-Ray

Customer Enablement

- AWS IQ [↗](#)
- Support
- Managed Services

Robotics

- AWS RoboMaker

Blockchain

- Amazon Managed Blockchain

Satellite

- Ground Station

Quantum Technologies

- Amazon Braket [↗](#)

Management & Governance

- AWS Organizations
- CloudWatch
- AWS Auto Scaling
- CloudFormation
- CloudTrail
- Config
- OpsWorks
- Service Catalog
- Systems Manager
- AWS AppConfig
- Trusted Advisor
- Control Tower
- AWS License Manager
- AWS Well-Architected Tool
- Personal Health Dashboard [↗](#)
- AWS Chatbot
- Launch Wizard
- AWS Compute Optimizer

Media Services

- Elastic Transcoder
- Kinesis Video Streams
- MediaConnect
- MediaConvert
- MediaLive
- MediaPackage
- MediaStore
- MediaTailor
- Elemental Appliances & Software

Machine Learning

- Amazon SageMaker
- Amazon CodeGuru
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- Amazon Forecast
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- Data Pipeline
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- Resource Access Manager
- Cognito
- Secrets Manager
- GuardDuty
- Inspector
- Amazon Macie [↗](#)
- AWS Single Sign-On
- Certificate Manager
- Key Management Service
- CloudHSM
- Directory Service
- WAF & Shield
- AWS Firewall Manager
- Artifact
- Security Hub
- Detective

AWS Cost Management

- AWS Cost Explorer
- AWS Budgets
- AWS Marketplace Subscriptions

Mobile

- AWS Amplify
- Mobile Hub
- AWS AppSync
- Device Farm

AR & VR

- Amazon Sumerian

Application Integration

- Step Functions
- Amazon EventBridge
- Amazon MQ
- Simple Notification Service
- Simple Queue Service
- SWF

Customer Engagement

- Amazon Connect
- Pinpoint
- Simple Email Service

Business Applications

- Alexa for Business
- Amazon Chime [↗](#)
- WorkMail

End User Computing

- WorkSpaces
- AppStream 2.0
- WorkDocs
- WorkLink

Internet of Things

- IoT Core
- FreeRTOS
- IoT 1-Click
- IoT Analytics
- IoT Device Defender
- IoT Device Management
- IoT Events
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- IoT Things Graph

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The Big Three: Compute

- **EC2 (Elastic Compute Cloud)**

Provides resizable computing capacity to build and host your software systems.

- **Lightsail**

The easiest way to get started with AWS for developers who just need virtual private servers.

- **Lambda**

Run code without provisioning or managing servers. You pay only for the compute time that you consume.

- **Batch**

AWS Batch enables you to run batch computing workloads on the AWS Cloud.

- **Elastic Beanstalk**

Quickly deploy and manage applications in the AWS Cloud without worrying about infrastructure.

The Big Three: Database

- **RDS (Relational Database Service)**

Provides cost-efficient, resizable capacity and management for industry-standard relational databases.

- **DynamoDB**

NoSQL database service that provides fast and predictable performance with seamless scalability.

- **DocumentDB**

MongoDB compatible NoSQL database service.

- **Redshift**

Petabyte-scale data warehouse service to efficiently analyze all your data.

- **ElastiCache**

Distributed in-memory cache environments in the AWS Cloud.

The Big Three: Storage

- **S3 (Simple Storage Service)**

Store and retrieve any amount of data at any time, from anywhere on the web.

- **S3 Glacier**

Low-cost storage, optimized for infrequently used data, or "cold data".

- **Elastic Block Store (EBS)**

Provides block level storage volumes for use with EC2 instances.

5 Things Every .NET Developer Should Know

1. AWS has great Tooling Support
2. The .NET SDK covers all of AWS services
3. You can create infrastructure using the CDK
4. C# is a first-class citizen in Lambda
5. AWS has a managed SQL service

<https://thebeeps.net/2019/08/12/5-things-every-net-developer-should-know-about-aws/>

Getting Started...

- A simple way to get into AWS development is to create a web app
 - Establish an account...
 - ...download the tools...
 - <http://aws.amazon.com/net>
 - ...create a .NET web app...
 - ...and deploy your app!

AWS Lambda

- Serverless computing
- Create code that responds to various types of events
 - Such as HTTP requests, but also completely different things such as scheduled tasks, database events,...
- .NET developers may already be familiar with the Microsoft counter-part: Azure Functions



AWS Database

- Lots of different options
- Including SQL Server...
- ...but also many others

Other Announcements

Event Survey – Win \$100!

- Complete this very short 10 question survey for a chance to win a \$100 Amazon Gift Card!
- <https://tinyurl.com/aws4devs>
- Survey must be completed by 11:59pm EDT on 7/31/2020 to be eligible to win!

CODE Magazine - Amazon Web Services (AWS) for Developers Webinar Survey

Thanks for attending! Complete these 10 simple questions to be eligible to win a \$100 Amazon Gift Card. It won't take but a minute or so. Your survey must be completed by 11:59pm EDT (GMT-4) on 7/31/2020 to be eligible to win! One entry per person please. Drawing will occur and the individual winner notified by 8/03/20.

Yes, we still want to hear from you if you watch the recorded video after 7/31/20. :-)

* Required

1. Full Name *

2. Company Name *

3. Email Address (valid email address required for Amazon Gift Card drawing) *

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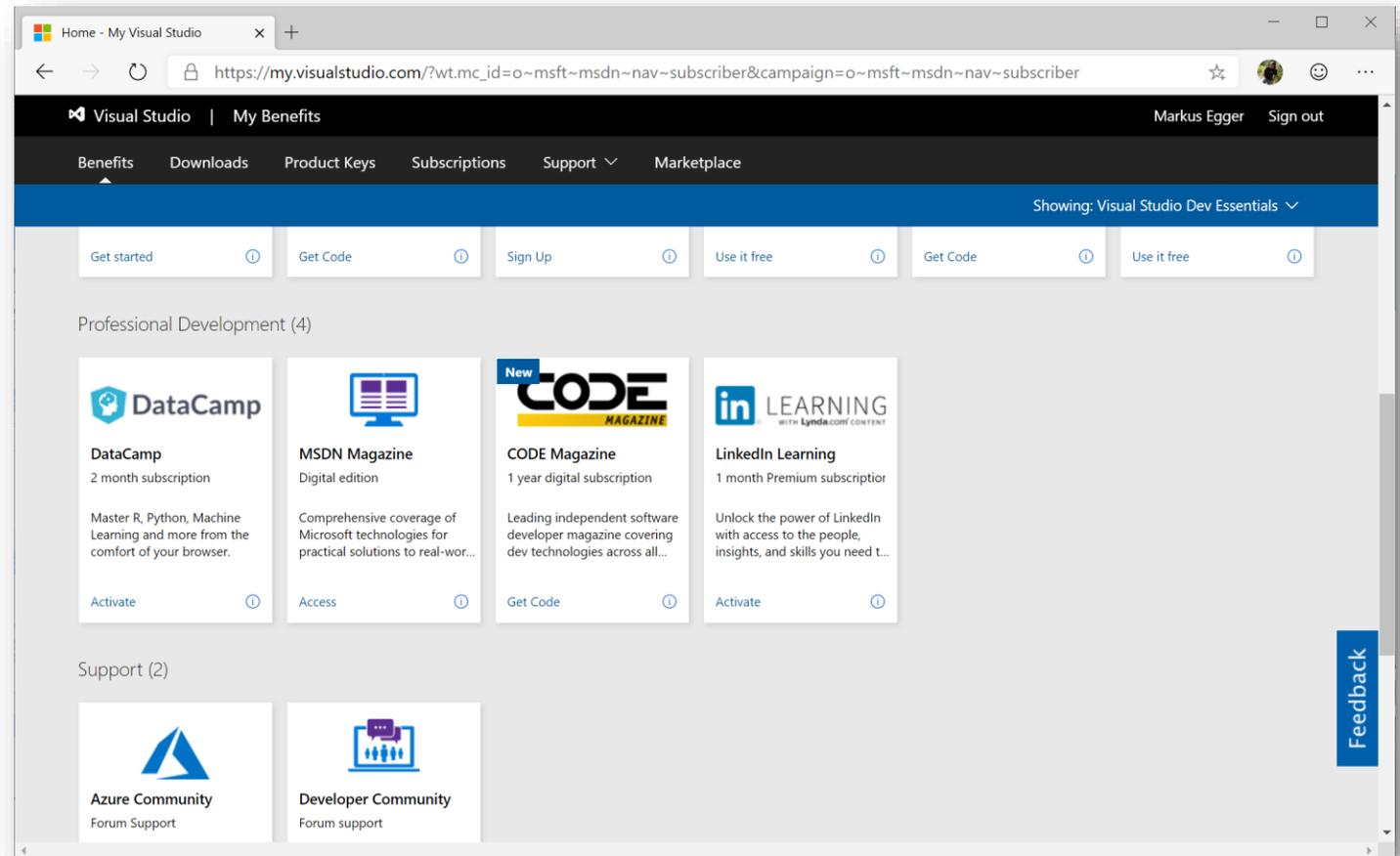
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Q&A

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