

Make your cloud migration thrive May 19th 2022





.NET DIVISION LEAD



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Agenda for today



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Facts:

30+

Years in business

Customers

100+



Banking & finance



Energy



Telecommunications



Healthcare & Pharmacy

Insurance



IT & consulting

Cloud services:

- ✓ Consulting & advisory
- ✓ Modernisation & migration
- ✓ Optimisation & automation
- ✓ Support & maintenance

Microsoft Partner Microsoft

Gold Cloud Platform Gold Data Analytics Gold Application Integration Gold Application Development





Technology changes faster than ever







COVID-19 pandemic



Industry findings predict continued migration and modernisation momentum



Growth in end user spend on public cloud computing to \$494B in 2022.

Source: Gartner Press Release: <u>Gartner Forecasts Worldwide</u> <u>Public Cloud End-User Spending to Reach Nearly \$500 Billion</u> in 2022 59%

Of organizations says that migrating more workloads to the cloud was a top Cloud Initiative for 2021

Source: Flexera State of the cloud 2021

90%

of existing apps will still be in use by 2023, cloud modernization top benefit

Source: Gartner. "Application Modernization Should Be Business Centric, Continuous and Multiplatform."



Why should customers migrate and modernise to Azure?

| Migration | | M | odernisation | |
|--------------------------------------|----------------------|-----------------------------------|-------------------------------------|---------------|
| Enterprise-grade Infrast for less | ructure | | e faster with a fully d platform | |
| Move on your terms with | hybrid flexibility | | | |
| Protect your most valua | ble assets with trus | sted cloud security ev | ery step of the way | |
| < | | programs help you n confidence | | \rightarrow |

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What are you going to learn?

- Benefits of the cloud infrastructure
- Cloud adoption framework
- Best practices
- Real world scenario

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Cloud Computing

- ✓ laaS
- ✓ PaaS
- 🗸 SaaS

Benefits

- Accessibility
- ✓ Availability
- ✓ Scalability
- Resiliency
- Security

Operation Costs

- Pay for what you use
- Reduce cost of infrastructure
- Pay as you go



Who Manages What?





Microsoft cloud adoption Framework for Azure

Cloud adoption is a strategic move by an organization to leverage the cloud in their business Cloud adoption framework for Azure is a set of tools, best practices, guidelines and documentation to help companies with this journey



CAF Stages







Motivations

Business Outcomes

Financial considerations

Technical considerations

Why are we moving to the cloud?

Innovation

- Increase business agility
- Prepare for new technical capabilities
- Build new technical capabilities
- Scale to market demand
- Scale to geographic demand
- Improve customer experience and engagement
- Transform products or services

Migration

- Increase cost savings
- Reduce vendor or technical complexity
- Optimize internal operations
- Increase business agility
- Prepare for new technical capabilities
- Scale to market demand
- Scale to geographic demand





| | What are business outcomes associated with transformation journeys? | | | |
|---------------------------------|---|--|--|--|
| Motivations | Fiscal | Agility | | |
| Business Outcomes | RevenueCostProfit | Time to market | | |
| Financial considerations | Global Reach Vew markets | Other Performance | | |
| Technical considerations | | Sustainability | | |





Motivations

Business Outcomes

Financial considerations

Technical considerations

How does cloud pricing work?

- Pay for what you consume
- ✓ CAPEX OPEX
- Reduced data center footprint





| | What are technical capabilities of |
|---------------------------------|---|
| Motivations | Understand your workloads |
| | Take advantage of cost-saving |
| Business Outcomes | Azure Hybrid |
| Dusiness Outcomes | Sport virtual machines |
| | Reservations |
| Financial considerations | Dev/Test pricing |
| | Extended security updates |
| | Optimize |
| Technical considerations | • |

of the cloud?

17



CAF Stages







Rationalization

Initial alignment

Skill readiness

Cloud adoption plan

Inventory and rationalize your digital estate based on assumptions that align your organization's motivations and business outcomes.

The 5 Rs rationalization

- ✓ Rehost
- ✓ Refactor
- Rearchitect
- Rebuild
- ✓ Replace





Rationalization

Initial alignment

Skill readiness

Cloud adoption plan

Alignment of people who will make the plan a reality

- Balance speed and control
- Map people capabilities
- Evolve organization structure







| | Adapt existing roles, skills, and processes for the cloud: |
|-------------------|--|
| Rationalization | Capture concerns Identify gaps |
| Initial alignment | Track dependencies Map roles and skills |
| Skill readiness | |

Cloud adoption plan





| | Build your cloud adoption plan: | | |
|-------------------|--|--|--|
| Rationalization | Prerequisites Define and prioritize workloads | | |
| Initial alignment | Align assets to workloads Review rationalization decision Establish iterations and release plans | | |
| Skill readiness | Estimate timelines | | |

Cloud adoption plan



CAF Stages





Ready



Azure setup guides

- ✓ Organise resources
- ✓ Manage access
- ✓ Manage costs and billing
- Plan governance, security, and compliance
- Establish monitoring and reporting

Cloud operating model

Define your operating model

 Refer to common cloud operating models

Azure landing zones

- Define your operating model
- Refer to common cloud operating models



CAF Stages





Adopt



Migrate

- ✓ Migrate first workload
- ✓ Migration scenarios:
 - Virtual Machines
 - Applications
 - o Data
 - o Hybrid
 - Other
- ✓ Best practices
- ✓ Process improvements

Innovate

- Business value consensus
- MVP
- Measure & Learn
- Expand:
 - o Democratize data
 - Engage via applications
 - Empower adoption
 - Interact with devices
 - Predict and influence



CAF Stages



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Real-world migration scenario

- Migration scenario overview
- Business drivers
- Migration goals
- Application to be migrated
- Proposed solution
- Migration process

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Migration scenario overview





Business drivers



Datacenter Exit

- Long term goal decommission
 datacenter
- Invest in applications
 development instead of
 infrastructure



Costs

- Moving to OPEX
- Pay for what you use
- Overall cost reduction

Scalability

- PaaS offerings
- Resources elasticity
- Better geographical reach



Migration goals



Application

Code refactoring migrating to

Linux

- Integrations with 3 parties
- Performance



Azure

- PaaS instead of VM
- PaaS SQL Server
- SaaS for Emails
- RabbitMQ will stay in VM
- Containerization with Docker



Development

- ✓ Use Azure DevOps
- ✓ CI/CD

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Proposed solution

- Introduce Docker container for the Web
 Applications
- Use Azure Container Registry for storing Docker images
- Use App Service for the Web Application hosting
- Use Azure Container Instance for Windows
 Services and RabbitMQ
- Use Azure SQL Database (PaaS)
- Azure DevOps for source version control and CI/CD



Proposed solution architecture

Not visible in diagram:

🖌 Key Vault

DNS Zone





Azure Services: Applications



App Service PaaS Service for web applications hosting





Container Instance Containers for asynchronous services; 1 group with 3 container instances

Azure pricing calculator estimates:

| App Service | í | Premium V2 Tier; 1 P2V2 (2 Core(s), 7 GB | Monthly: \$168.63 |
|---|---|---|-------------------|
| Azure Container Registry | í | Basic Tier, 1 units x 30 days, 0 GB Bandwic | Monthly: \$5.00 |
| Azure Container Instances | í | 1 Container group(s) x 2,592,000 Second(| Monthly: \$90.68 |



Azure Services: Database



Azure SQL Database

PaaS Service for relational database; Elastic Pool allows optimal resource utilization between multiple databases;

Azure pricing calculator estimates:

Azure SQL Database (i) Elastic Pool, LRS, DTU Purchase Model, Standard ... Monthly: \$110.26



Azure Services: Virtual Machine



Azure pricing calculator estimates:





Azure Services: Storage Account and CDN





Storage Accounts: Block Blob Storage Static content and log files storage;

Azure pricing calculator estimates:

| ✓ Azure Front Door | í | Standard tier, 100 x 10,000 Requests, 5 GB of Out | E 🚺 | Monthly: \$36.41 |
|--------------------------------------|---|---|-----|------------------|
| Storage Accounts | í | Block Blob Storage, General Purpose V2, LRS Red | Ē | Monthly: \$3.12 |
| Storage Accounts | í | Block Blob Storage, General Purpose V2, LRS Red | F 🚺 | Monthly: \$3.12 |
| Storage Accounts | í | Block Blob Storage, General Purpose V2, LRS Red | Ē | Monthly: \$3.12 |
| Storage Accounts | í | Block Blob Storage, General Purpose V2, LRS Red | F 🚺 | Monthly: \$3.12 |


Azure Services: Virtual Network and Key Vault





Virtual Network Virtual network for secure communications from VM, container instances with App Services;

Azure Pricing Calculator estimates:

| \sim | Virtual Network | (j | East US (Virtual Network 1): 100 GB Outbound D | Monthly: \$4.00 |
|--------|-----------------|----|---|-----------------|
| \sim | Key Vault | í | Vault: 100,000 operations, 10,000 advanced oper | Monthly: \$0.45 |



Lessons Learned

 Azure cloud offers infrastructure and many different services to support any application migration

- Cloud Adoption Framework is a great methodology and resource for anyone looking for cloud adoption
- Microsoft offers a multitude of tools that help you prepare, estimate costs, and perform migration
- ✓ A more comprehensive migration process analysis may allow us to minimize manual tasks and total costs of migration

Solution Assessment – As a Microsoft Service

- We provide customers with in-depth understanding of the opportunities available in their current IT environments to improve productivity, reduce cost and optimize investments.
- Provided directly by Microsoft team and at NO COST
- The final report can be shared with both the Customer and their selected Partner, to let them move forward and plan for the next steps including the migration project
- In the Microsoft Solution Assessment as a Service model, Microsoft delivers the assessment itself, which the migration Partner can leverage to build the roadmap for next steps and actual migration



Microsoft Cloud Adoption Journey

Microsoft

Proven business and technical guidance to help customers create and implement the **business and technology strategies** necessary to succeed in the cloud



FY22 Solution Assessment Portfolio | Overview

| | | | Solution Assessme | nent Portfolio | | | | | |
|--------------------------------------|---|----------------------------|---|--|---|--|--|--|--|
| Solution Area | Apps + Infra; Data and A | AI | | Security, Compliance, and Identity | Modern Workplace | Business Applications <i>(to come)</i> | | | |
| Portfolio Seller Selected | Infrastructure and App and database database migration modernization | | Data and Al | Cloud Security | Modern Workplace | Business Applications | | | |
| Solution Outcomes SAS Selected | Infrastructure migration Apps, Data & Infra to IaaS/VMsDatabase Modernization | | Analytics Assessment Transforming data- analytics Maturity Model | <u>Cloud Security Assessment</u> Analysis of an organization's security posture, evaluating vulnerabilities, identity, and compliance risks with remediation recommendations | Modern Workplace Assessment Provide customers with an in- depth scan of deployed hardware and productivity software while evaluating security and compliance positions | Business Applications Provides established customers with a fast, data- driven analysis, and business case recommendation to move to Dynamics 365 | | | |
| | | undations/Holistic Busines | | | | | | | |

Process Overview

Timeframe



- Align expectations and scope
- Prepare **prerequisites**
- Start data collection
- Check data quality

- Validation
- Adjustments

- Identify
 opportunities
- Hand-off to the selected partner

Total Estimated Time: 3-6 weeks

Time Commitment required of customer: 3-6 hours

Example #1: Azure Foundations Assessment

This assessment helps organizations understand their cloud maturity and provide steps to digitally transform. This is a consultative assessment to help organizations evaluate their options and capabilities for digital transformation that align with their current cloud maturity and strategic plans. Provides a broad review of your IT estate providing cloud readiness, prioritization of workloads for migration to Azure, detailed cost consumption estimates, and recommendations for governance.

Sample Outputs

Azure Sizing & Costing Estimates



Sustainability Analysis



Cloud Adoption Framework



Device & SQL Database Dependencies



Assessment Details

- Tools Used: Movere or Block64, Application Services Migration Assistant & Database Migration Assistant
- Timeline: 3-4 weeks
- Customer Profile.: Customers who consider moving to Azure but don't know where to start, Customers who wants to have a holistic assessment for their VM/DB/Applications
- **Insights Scope:** Application & Database Modernization, Data and Infrastructure migration, Cloud Adoption Framework Analysis



Contact your Microsoft Sales Representative or Partner to learn more

Cloud Adoption Journey Position



Successfully cloud adoption requires a clear understanding of your current state and what business objectives you want to achieve. This report will help you identify your cloud adoption needs based on the questions your assessment survey answers.



Maturity per Category



| Category ▼ | Recommendations |
|---------------|---|
| Strategy | Plan to create one workload for specific business functions. |
| Ready | Create a landing zone. Ask your Microsoft specialitst for guidance. |
| Manage | Have a monitoring strategy in place for each of the cloud deployment models - infrastructure, application, and network resources? You can consider Azure Monitor as an option. |

Cloud Journey Tracker - Assessments | Microsoft Docs



Azure Sizing & Costing Estimates





Performance

| Performance Metrics | | | < Back to Start | Powered by Microsoft Solution Assessment as a Service |
|---------------------|--------------------|-------------------------|----------------------|--|
| 169 | Average CPU Usage | Average RAM Usage | Average Disk IOPS | Average Disk Throughput |
| Servers | | | | |
| Search | 3% | 39% | 395 | 26.23 |
| DEMO-0010 | 0% | 100.00% 0% | 100.00% 0.00 | 2,914 0.00K 1315 |
| DEMO-0054 | On Brom Core Count | On prom Total DAMA (CP) | | |
| DEMO-0055 | On-Prem Core Count | On_prem Total RAM (GB) | | |
| DEMO-0079 | 1 20 | 1 328 | | |
| DEMO-0136 | \bigcirc | | Avg IOPS | Disk Throughput (MB/sec) |
| DEMO-0215 | \bigcirc | 0 0 | 0 1182 | 1 1315 |
| DEMO-0252 | Aug. (2019) | Avg RAM% | \bigcirc | |
| DEMO-0275 | Avg CPU% | | \bigcirc | \circ \circ \circ |
| DEMO-0286 | 0% 38% | 4% 91% | Pla | tform Hosting Location |
| DEMO-0289 | 0 | | | ✓ On-Premises ✓ |
| DEMO-0292 | Ŭ | 0 | | |
| DEMO-0294 | Server Name | Migration Group | SQL Edition Env | vironment Tags |
| DEMO-0299 | All | ∽ All ∽ | All \checkmark All | \sim All \sim |

On-Premises Performance

| Device-Name | ARC Sca | anned | Core Count | Avg CPU% | 99 CPU% | Total RAM (GB) | Avg RAM% | 99 RAM% | NIC Count | Drive Count | 99 Disk IOPS | 99 Disk Thrpt. (MB/sec) | Used Storage (GB) | Total Storage (GB) | Platform | Operating System |
|-------------|---------|--|------------|----------|---------|----------------|----------|---------|-----------|-------------|--------------|-------------------------|-------------------|--------------------|----------|---------------------|
| DEMO-0010 | Yes | \sim | 2 | 2% | 7% | 4 | 61% | 65% | 1 | 1 | 53 | 1 | 25 | 39 | VMware | Windows Server 201 |
| DEMO-0054 | Yes | Image: A second s | 2 | 2% | 9% | 8 | 27% | 34% | 1 | 1 | 272 | 132 | 22 | 39 | VMware | Windows Server 201 |
| DEMO-0055 | Yes | ~ | 4 | 3% | 12% | 4 | 39% | 41% | 1 | 1 | 63 | 3 | 20 | 40 | VMware | Windows Server 201 |
| DEMO-0079 | Yes | ~ | 2 | 1% | 6% | 4 | 52% | 58% | 1 | 2 | 117 | 4 | 239 | 579 | VMware | Windows Server 2019 |
| DEMO-0136 | Yes | ~ | 2 | 0% | 1% | 4 | 19% | 21% | 2 | 12 | 77 | 1 | 27 | 39 | VMware | Ubuntu 20.04.2 LTS |
| DEMO-0215 | Yes | ~ | 4 | 8% | 22% | 12 | 74% | 84% | 1 | 2 | 883 | 1315 | 83 | 120 | VMware | Windows Server 201 |
| DEMO-0252 | Yes | ~ | 2 | 4% | 11% | 8 | 24% | 27% | 1 | 1 | 88 | 4 | 48 | 80 | VMware | Windows Server 2010 |
| DEMO-0275 | Var | 1 | 1 | 2% | 10% | Л | 5.6% | 60% | 1 | 1 | 1.95 | 5 | 21 | /IN | V/Mware | Windows Server 201 |

Example #2: Application Modernization Assessment

The Application & Database Modernization Assessment assists organizations with identifying and prioritizing in-house developed applications and/or databases for cloud modernization. Primarily for organizations who are looking to move applications to the cloud and need support in understanding which applications to move first and how to increase readiness to migrate and modernize.

Sample Outputs

Application Readiness (CloudPilot)

| DemoApp1 | Migration scen | narios: | | |
|---|-----------------------------|---------------|-----------------|-----------------|
| Platform .NET | | Pa | aS | ——— laaS ——— |
| Type Web Application Scan date March 29, 2021 Components 727 | | 🔇 App Service | AKS Container | Virtual Machine |
| Lines of Code 16,686,054 | Recommendations | 261 | 228 | 219 |
| | Readiness | 74% | 77% | 84% |
| Recommendations: Consider App Service or AKS Container | Migration effort (hours) | 1854 | 1306 | 598 |
| Update database connection strings, enable connectivity between Azure and datacenter, and validate all URLs are reachable | Service depend | dencies: | Application | |
| 3 Blob storage service is recommended for document handling | | | | |
| Consider additional services: Azure DevOps, GitHub, and Azure Key Vault | | D8 Conne | ctions Hard cod | ed IP Address |

DemoDB1 Migration scenarios: Platform Scan det Databases SQ Srover Stod 13, 2021 Databases Databases SQ Srover Stod 13, 2021 Databases Baselines SQ Srover Stod 13, 2021 Databases Recommendations: SQ Srover Stod 2000 Developer (46-bit) Recommendations: T 1 Conside SQL Managed Instance Sa Single Stod 2000 Developer (46-bit) 1 Conside SQL Managed Instance Developer referent 22 1 Conside rouge mendent migration method:

Database Readiness (CloudPilot)

oge roads (Bret 12 Cd) included in Instance area road (Bret 12 Cd) included for an order of Instance and Including or workhout) SQL Server - Assenting Assenting Control (Free Database Control (Free

Software Health (Cast Highlight)

| Algorithmic Trading Code Alerts - Cobol | | | |
|--|--------------------|---------------------|-----------|
| Software Elegance 63.7 | 50 | 0 10 | 100 |
| Code Alerts | Frequency | Riskiest Files | Code Size |
| | | | |
| Bulky files are complex to work with. | 32.41 % | CR29310 | 7k |
| | 32.41 % 16.47 % | CR29310 YR26560C | 7k 7k |
| Structural code complexity may be too high. | 0.000 | | |
| Structural code complexity may be too high. The code contains too many complex conditions. | 16.47 % | YR26560C | 7k |
| Builty Bles are complex to work with. Structural code complexity may be too high. The code contains too many complex conditions. The code vocabulary frequency may be too low. The code is managing too many files together. | 16.47 % 14.66 % | YR28560C CD65215 | 7k 6k |

Open Source Safety (Cast Highlight)



Assessment Details

- Requirements: Applications built in-house with .NET, PHP, Java or Python
- Tools Used: CAST Highlight & CloudPilot
- Timeline: 1 week
- Customer Profile:
 - Customers who are looking to modernize their applications and databases
 - Customers who are also ISV with legacy app
 - Customers who have gone through an Infra and Data Migration Assessment and are now focusing on application modernization
- **Insights Scope:** Azure App Service Costing, Azure Container (AKS) Costing, Virtual Machine Costing, Database Migration options, Effort estimation, Code adjustment recommendations.



Contact your Microsoft Solution Assessment Consultant or Partner to learn more

Example #3: Cloud Security Assessment

Provides organizations with a comprehensive look at their security posture by evaluating & addressing immediate vulnerabilities, identifying unmanaged devices, analyzing current software deployment & usage, discussing policies and controls to reduce risk, and delivering remediation recommendations to help establish processes for cyber-risk reduction in the cloud.

Sample Outputs

Cloud Security Scorecard



Endpoint Exposure, Antivirus & Encryption

| S | Bad | spicious - | Yes | | | N | Critical | | Low | | |
|-------------------------------------|--|-------------|-------------------------------|---------|-----------|---|---------------|--------|------------|---------|----|
| o Window Defende Machine Name | | Normal | Al/ Name | Threat | Bitlocker | | Endpoint Name | Low Mo | derate imp | -Import | |
| /MEU-DC2 | Microsoft Windows Server 2016 Datacent | er UNKNOWN | Windows Defender | Normal | Yes | | | | | | |
| VMEU-DCCore1 | Microsoft Windows Server 2016 Datacent | er UNKNOWN | Windows Defender | Normal | Yes | | VMEU-DC2 | 0 | 0 | 0 | 2 |
| VMEU-MGMT01 | Microsoft Windows Server 2016 Datacent | er UNRNOWN | Windows Defender | Normal | No | | VMEU-DCCore1 | 0 | 0 | 0 | 1 |
| VMEU-Win10-01 | Microsoft Windows 10 Pro | SNOOZED | Windows Defender | Normal | No | | VMEU-MGMT01 | 0 | 0 | 0 | 0 |
| VMEU-Win10-06 | Microsoft Windows 10 Enterprise N | SNOOZED | Windows Defender | Normal | No | | VMEU-Win10-06 | 0 | 0 | 0 | 0 |
| WintOPC | Microsoft Windows 10 Enterprise | SNOOZED | Windows Defender | Normal | No | | Win10PC | 0 | 0 | 0 | 0 |
| Win2008PC | Microsoft Windows Server 2008 R2 Stand | and UNKNOWN | "No AV API" | Red | No | | Win2008PC | 1 | 7 | 66 | 21 |
| Win2012PC | Microsoft Windows Server 2012 R2 Stand | and UNKNOWN | "No AV APP" | Normal | No | | Win2012PC | 0 | 0 | 1 | 1 |
| | Microsoft Windows 7 Professional | ON | Microsoft Security Essentials | Bad | No | | WindPC | 0 | 0 | 0 | 0 |
| Win7PC | Minutes 1 Minuteses 2 1 Determine | SNOO7ED | Mirobur Dafarolar | Sanking | No | | Total | 1 | 7 | 67 | 25 |
| Win7PC Winter | | | | | | | | | | | |

Azure Secure Scores & Recommendations



Azure Account Threat Exposure



Assessment Details

- Tool Used: Cloud Security Assessment Tool (CSAT)
- Timeline: 2 weeks
- Customer profile: Customers who are looking to understand their risk of business loss and vulnerabilities to cyberattack
- Insights Scope: Company score based on CIS control, Action plans to improve Cyber Security, OS and SQL End of Support, SQL Service Pack Deviations, Software Vulnerabilities, Microsoft and Azure Secure Score, Exposure to Ransomware, and other threats

| Preparing | Discovery | Analysis | Delivery | |
|------------------------------|--------------------|--------------|--------------------|--|
| Expectations & prerequisites | Tool Deployment | Deliverables | Close & Handoff | |

Contact your Microsoft Sales Representative or Partner to learn more

Example #4: Modern Workplace Assessment

The Modern Workplace Assessment helps organizations simplify cloud adoption and reduce risk. It provides visibility into desktop and on-premise environments while helping improve end user productivity.

Sample Outputs



Workstation Lifecycle





Assessment Details

- Tool Used: Block64
- Timeline: 2 weeks
- **Customer profile:** Customers who are early in their cloud journey with on-premises Office and dark to the cloud with O365/M365
- **Insights Scope:** Executive summary, Customer business objectives, Scope of project, Data-driven findings on analysis, Suggested architecture and migration recommendations, Desktop management, Teams collaboration, Security and Surface hardware recommendations

| Preparing | Discove | ery | Analysis | Delivery | |
|------------------------------|-----------------|-----|--------------|--------------------|--|
| Expectations & prerequisites | Tool Deploym | ent | Deliverables | Close & Handoff | |

Contact your Microsoft Sales Representative or Partner to learn more



If you want to learn more, feel free to reach out to your partner or directly to me @ <u>Nadya.Aneva@microsoft.com</u>

Thank you.

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