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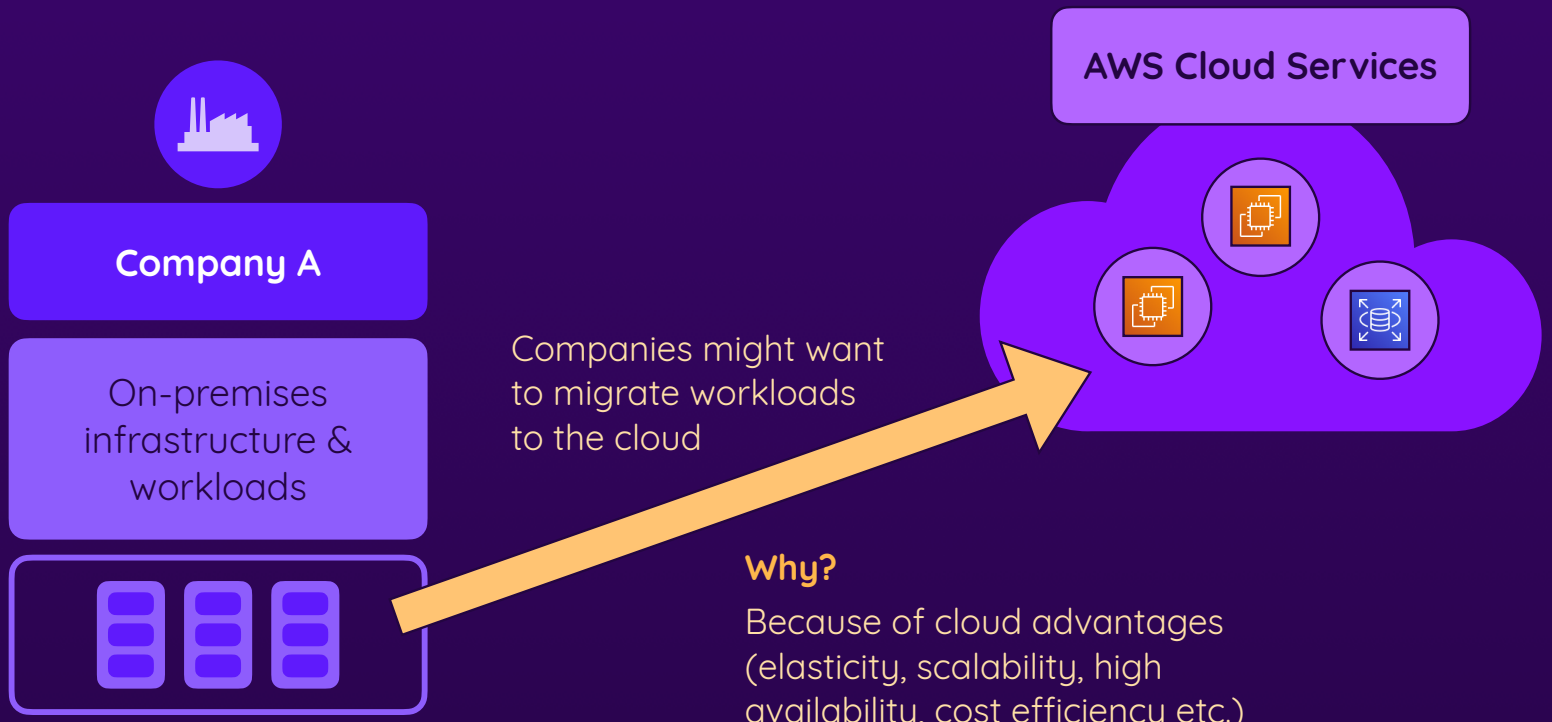
Migration & Hybrid Cloud Computing

From on-premises to cloud — or not

- How AWS Helps With Migration
- Key Services: Snow Family & Migration Services
- Building Hybrid Infrastructures: On-premises & Cloud

Migration: What & Why?



Why?

Because of cloud advantages (elasticity, scalability, high availability, cost efficiency etc.)

Migration Challenges

Workloads must be migrated **without interruption**

Expected **costs** must be **estimated**

Some workloads might need **adjustment** to run correctly (on cloud services)

Bonus

Some (or even all) workloads could be updated or rewritten to fully embrace AWS services & cloud benefits

Solutions & Migration Approaches

Migrate step-by-step, workload after workload	Use AWS & on-premises side-by-side During the migration period or forever (**Hybrid Cloud**)	Monitor & analyze migrated services & workloads
Start by migrating individual servers or basic workloads, then continue step by step	Connect AWS services to on-premise workloads & infrastructure	Use AWS monitoring & cost management services for insights
AWS Migration Hub, Application Migration Service, Database Migration Service ...	Storage Gateway, Outposts, Direct Connect, VPN, ...	CloudWatch, Cost Explorer, Budgets, ...

Key Migration Services

Migration Hub

A central place to track the overall migration process

Application Migration Service

Automated server application migration (agent software analyzes + replicates system)

Database Migration Service

Automated database migration (homo- and hetero-geneous + schema conversion)

DataSync

Synchronizes (copies) on-premises data with cloud data in EFS, S3 or FSx (e.g., via local NFS)

Transfer Family

Maps (S)FTP endpoints to S3 or EFS storage

Snow Family

Physical devices for moving data and / or performing compute tasks (at the edge)

Hybrid Cloud Computing

Run some workloads in the cloud & some on-premises

Outposts

Snow Family

ECS / EKS Anywhere

Storage Gateway

DataSync & Transfer Family

Systems Manager

Hybrid Cloud Computing

Outposts

AWS infrastructure, added to your local on-premises infrastructure

Snow Family

Portable devices, usable for data migration or edge computing

ECS / EKS Anywhere

Tooling & APIs for running ECS / EKS on local infrastructure

Storage Gateway

Interface for enabling on-premises workloads to use cloud storage (S3 only)

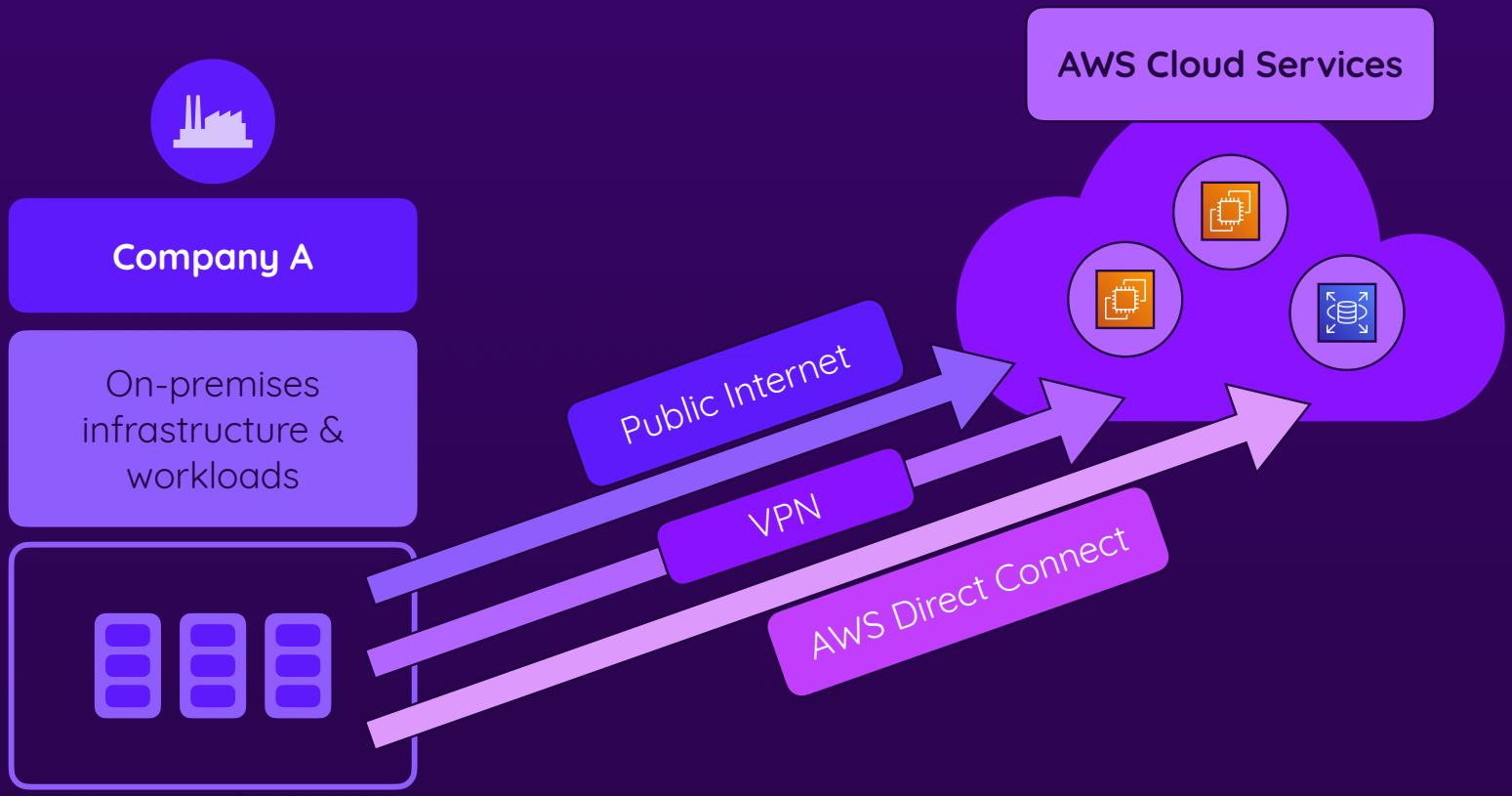
DataSync & Transfer Family

Service for syncing data between cloud & on-premises

Systems Manager

Manage large-scaling server fleets (EC2 & local), parameters, incidents & more

Different Connection Options



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Different Connection Options

Public Internet

Easy to use, no extra setup or costs

Data transfers could be compromised

VPN

Private network on top of the internet

Higher protection due to private network

Client VPN: Software solution for connection people to networks

Site-to-site VPN: Uses **Transit Gateways** or **Virtual Private Gateways**

AWS Direct Connect

Private, dedicated AWS-network connection

Highest protection due to isolated network

Extra costs

Uses **Direct Connect locations**, **Virtual Private Gateways** & **Direct Connect Gateways**

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Summary

A Challenge: Moving To The Cloud	Migration	Hybrid Cloud
Not all companies start “in the cloud”	Various migration services offered by AWS	Instead of going “all-in”, hybrid solutions could be preferred
Migration processes can be challenging	Application & Database Migration Services, DataSync etc.	Storage gateway, Systems Manager, Outposts etc.
AWS offers services that helps with migration	Transfer data via internet, VPN or Direct Connect	Transfer data via internet, VPN or Direct Connect
Companies could also aim for hybrid solutions		