Network architecture for service provider

In cooperation with

aws PARTNER Premier Tier Services
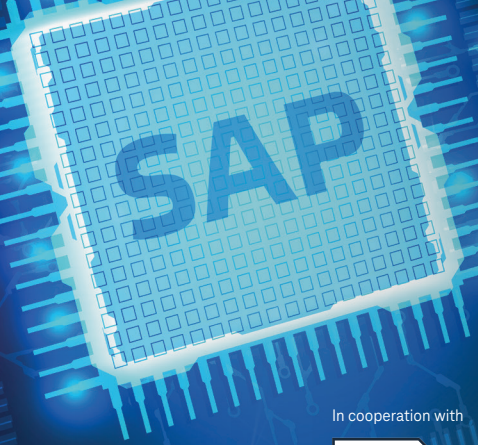
Executive summary

The customer has asked T-Systems to help design and implement a scalable network setup, allowing them to extend their SAP outsourcing offering for customers towards AWS cloud.

Key requirements in line with their on-premises setup have been a multi-regional network access strategy including automated failover to a disaster recovery site for their customers.

About the customer

The leading SAP hosting provider is guiding manufacturing companies on their way to digitalization. As a 360° partner, they offer innovative and cutting-edge services and products ranging from licenses/maintenance, hosting, consulting, integration and development to application management support at seven locations worldwide.

The challenge

The company required a proper networking solution to be able to move some of their existing customers to AWS cloud.

The followings objectives have been defined:
- Plan and realize a secure and scalable network architecture
- Ensure redundant connection to the AWS cloud
- Ensure connectivity to their backup and disaster recovery (DR) site, replicating the setup the customer agreed with their customers in the on-premises world
- Plan and setup a multi-account network structure to support strong customer segregation
- Plan and setup a disaster recovery solution for their customers spanning the network across multiple AZ and regions
- Know-how transfer

Finally, in order to achieve a cost-effective setup, it was also required to create an environment that is not deploying all needed services per customer AWS account. So resource sharing should be preferred when possible.

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The solution

The realized setup mainly consists of a eu-central-1 centric network account that features the AWS Direct Connect connection to the on-premises datacenter.

Via that connection the company as well as their customers connect to their AWS environments using AWS Direct Connect.

This network account also features the following shared resources to save cost:

- AWS Internet Gateway
- AWS Nat Gateway
- AWS Transit Gateway (in DR region and in eu-central-1)
- AWS IPsec VPN for DR connections to 2nd region in France
- AWS IPsec VPN as failover for Direct Connect

- AWS VPC Endpoints
  - EC2
  - Systems Manager
  - S3
- Application Migration Service (MGN)

These services allow the customer AWS accounts to be isolated from the Internet and use a central deployed AWS Transit Gateway to reach the shared services.

Also, there is an AWS Transit Gateway peering with the DR site in eu-west-3 to achieve connectivity connection to the DR site.

The VPC endpoints especially for EC2, MGM and S3 are required to support the heavy usage of the AWS Application Migration Service via AWS Direct Connect to migrate systems from on-premises to the AWS cloud.
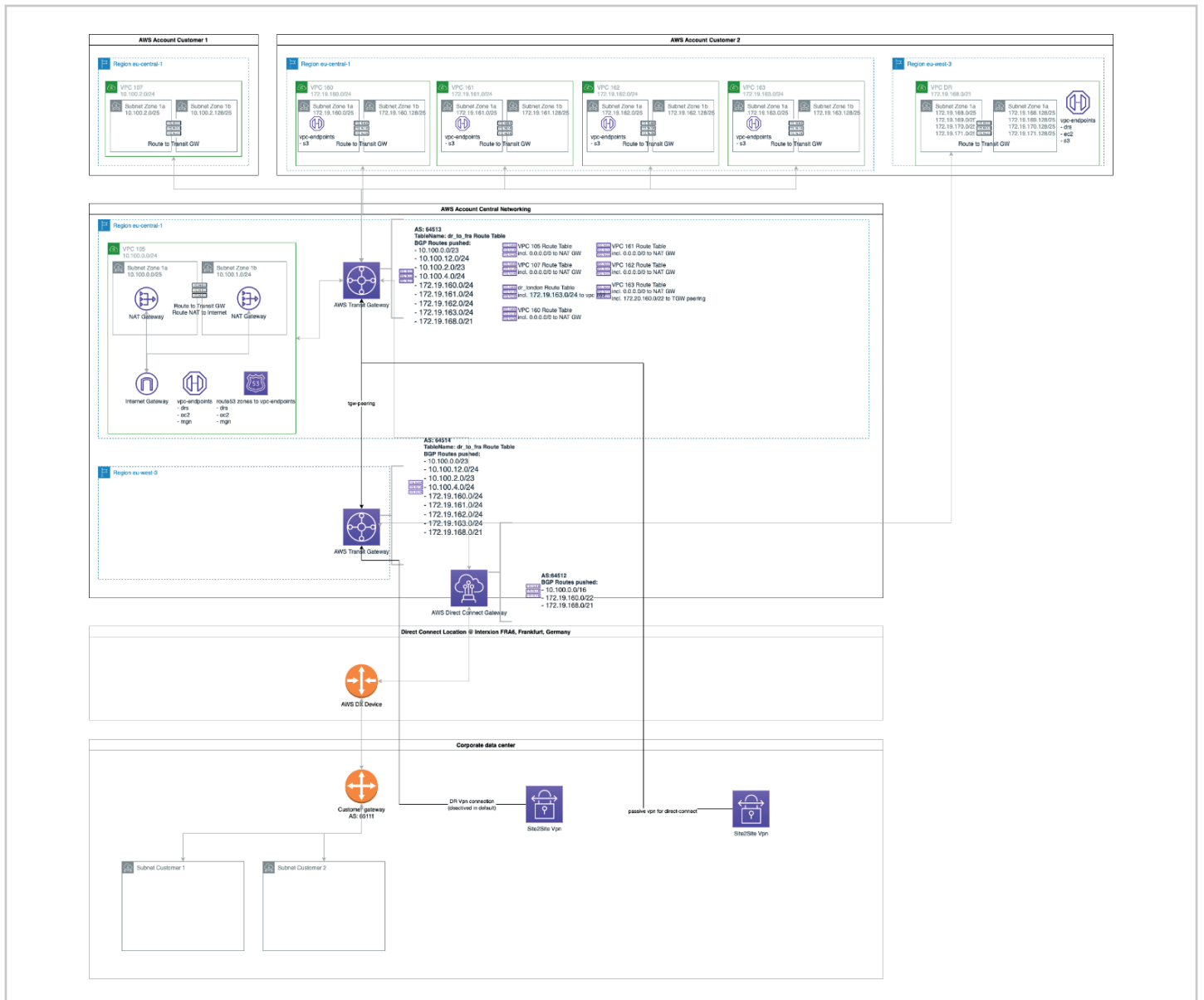
Results and benefits

With the solution described above, the customer achieved a highly redundant and scalable networking solution to serve their SAP on AWS customers. The setup utilizes two availability zones and also implements a DR site.

The setup uses services (AWS NAT Gateway, AWS Transit Gateway) in preference over single-instance machines (NAT-instances) to achieve a good quality of service and also support autoscaling.

The chosen setup, especially from routing perspective, offers a good solution in terms of manageability compared to a more complex setup using VPC peerings.

About the partner

With a footprint in more than 20 countries, T-Systems is one of the world's leading vendor-independent providers of digital services headquartered in Europe. The Deutsche Telekom subsidiary offers one-stop shopping: from secure operation of legacy systems and classical ICT services, transition services to cloud solutions as well as new business models and innovation projects in the Internet of Things (IoT). T-Systems is also an accredited AWS Managed Service Provider (MSP) and Premier Consulting Partner with more than 500 experts on AWS with a growing list of competencies that include cloud migration, SAP system integration and consultancy support with the AWS Well-Architected Framework.

Moreover, T-Systems is an official AWS Direct Connect delivery partner, which means it is in the position to handle hosted-connections.

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