

Cloud Networking

Our point of view

Today's need for always on is driving exponential growth in technology, and experiences have become increasingly connected, digitised, distributed and diverse. As a result, clouds are now the cornerstone of the new IT landscape. Not only do they provide agility, scalability, and new commercial models, but they also help you move legacy and on-premises systems to more available, better performing, private or shared controllable platforms.

But how do you successfully integrate cloud with your current IT networks and systems? And provide consistent management principles and security policies across all?

Moving to the cloud will bring new challenges. The cloud architecture operating model looks very different from the traditional one, so “copy and paste” is unlikely to work. With a mix of cloud-legacy and cloud-native apps, engineering around latency and performance for your users is key.

With the right integration between cloud and network, you'll be ideally placed to embrace digitisation. Cloud, when done right, means your business applications run smoothly, you can flex and scale as required and your customers and users get the performance and experience they expect. Keeping visibility and security consistent in the cloud will help you stay in control, adapt to business demands and enable you to check applications are working smoothly.

Solving the puzzle with Cloud Networking

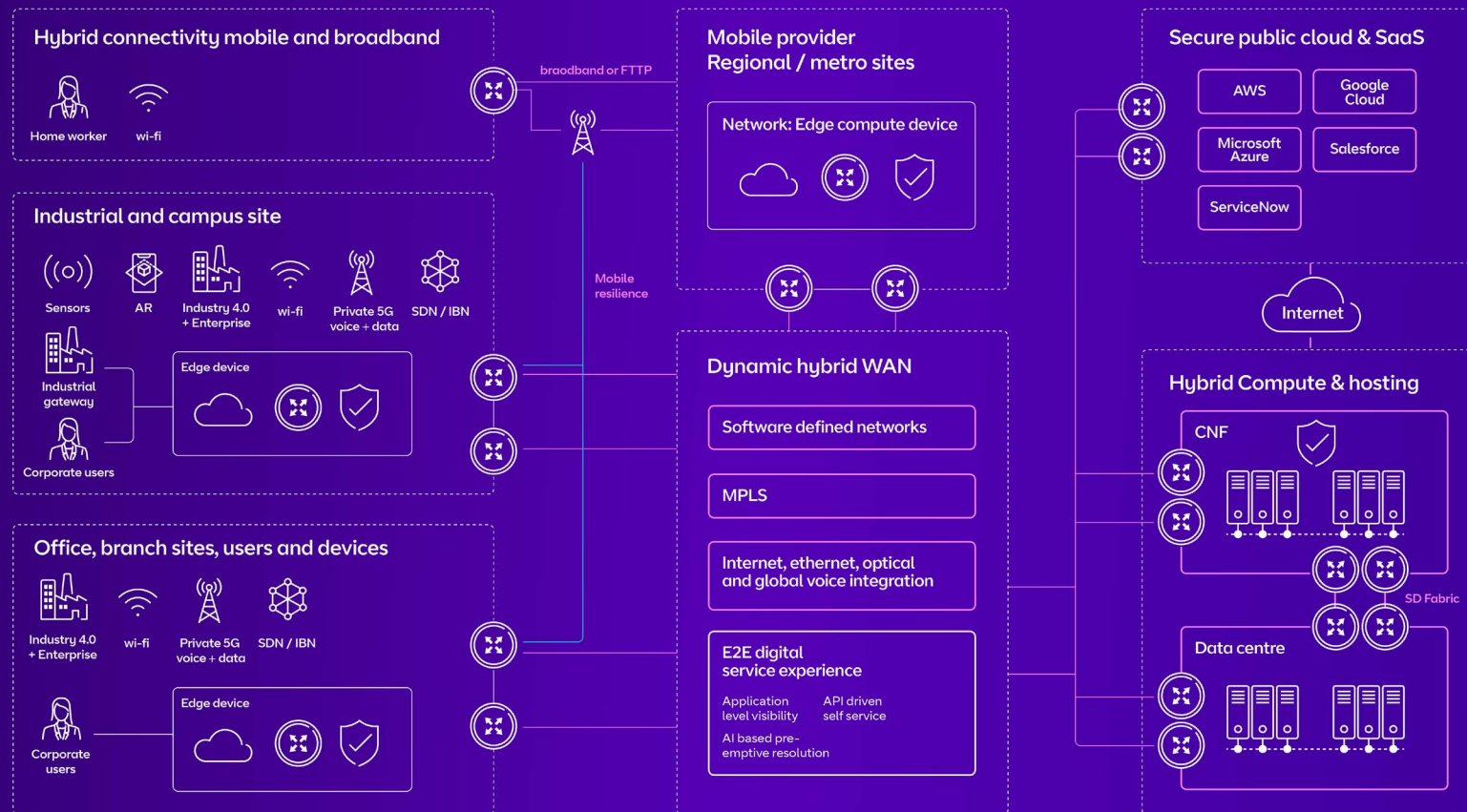
We've been operating a global digital network with security at its heart for some years; integrating, orchestrating and automating with all major public cloud providers at multiple points across the world. We also have a range of private and partner data centre and hosting facilities that can deliver a successful private and public cloud strategy. So we can readily design and guide a cloud transformation that delivers for your global audience and users. And takes account of governance and compliance factors which may restrict you to keeping data in particular geographies.

Using the experience we've gained protecting BT, nation-states and multinational customers, security considerations are built into your designs right from the start. We'll help you achieve the outcomes you need with our flexible managed service models. And once we have it working for you, we'll plan and iterate change as you grow and develop your new service environment.

We offer:

- outcome based contracts
- long run total cost of ownership (TCO) reduction
- PAYG consumption aligned to business velocity and appetite
- evergreen technology strategy with flexible integrations
- security by design
- cloud service and functions ordered through digital interactions.

Global customer connectivity architecture



Our blueprints span network topology from branch and Industry 4.0 sites right into the cloud. Use them together with our experience to better align to business outcomes.

There are 3 typical stages of evolution as businesses move to the cloud. The different features of each phase influence the architectures that customers typically ask for.

1. Making cloud connections

Provides you with network connectivity and security gateway services as you expand your cloud infrastructure. This gives you flexibility into single partners at the right speeds and locations, into the clouds you choose to connect into.

Indicators

- Customers using traditional WAN connectivity.
- Single connections into each cloud partner with multiple connections for multiple cloud partners.
- Highly resilient gateway designs with strong SLAs.
- Direct and dedicated paths into each cloud as another site on the network.
- No specific cloud security set-up, part of the network.
- Not so agile and rapid turn-up of new connectivity, requires design process.
- Bandwidth speeds are pre-set per connection and not shared.

2. Enabling data centre transformation

Supports the integration and transformation of your data centre assets. It also builds software-driven hybrid infrastructure for your data centre estate and combines this with cloud connections and the potential to use Carrier Neutral Facilities (CNF) and interconnects into the public cloud.

Indicators

- Modernised, highly efficient data centre LAN footprints, for retained private infrastructure.
- Apps closer to distributed and remote users for better responses.
- Hybrid-hub connectivity to reach across network partners.
- Easier management of public cloud networking and transits through partners or cloud platforms.
- Network partners to control and manage routing within your cloud spaces.
- Cloud security strategy forming / formed.
- Virtual deployment locations and orchestration options for SD-WANs.
- Bring together multiple cloud connections into common hubs for ease.
- Richer partner eco-system in those meeting hubs to deliver innovation and best of breed outcomes.

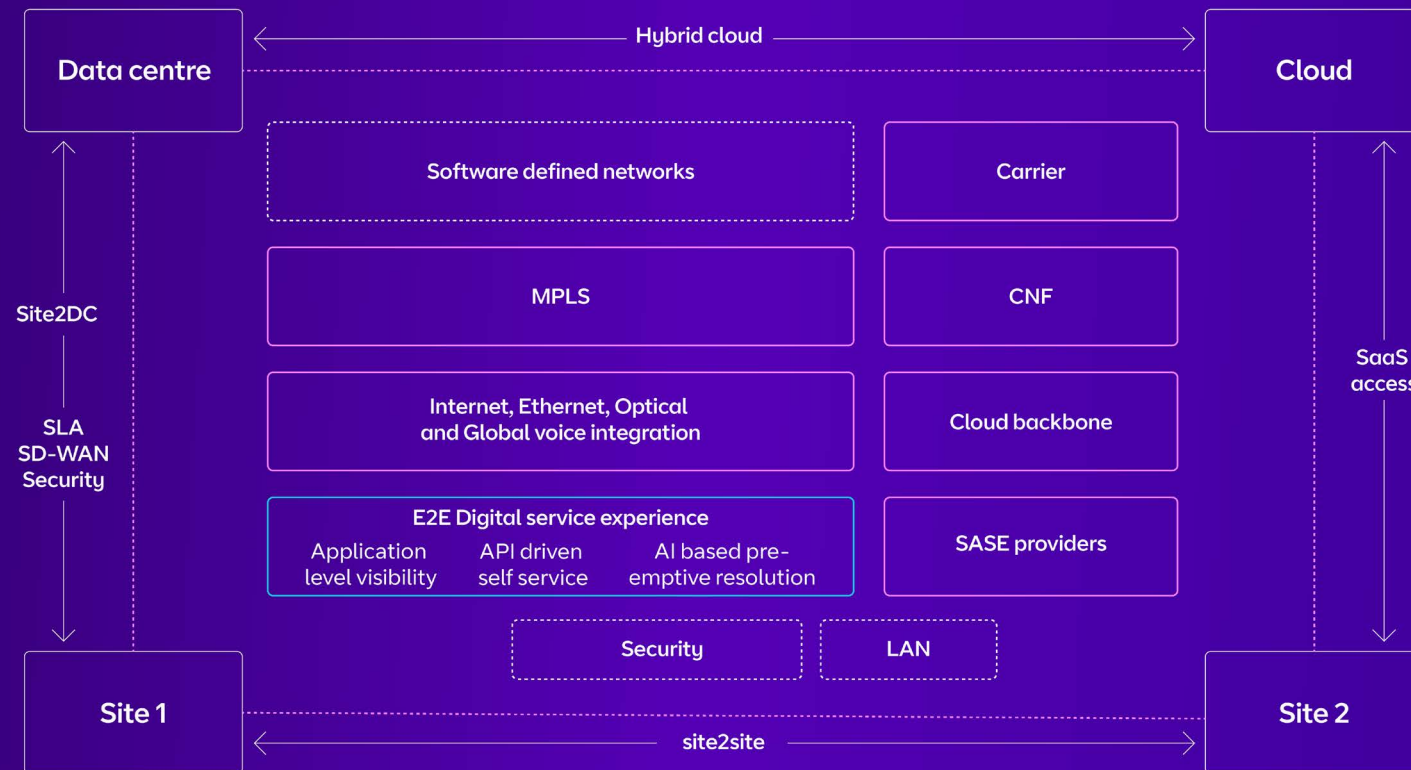
3. Delivering hybrid optimised cloud

Enables the balanced use of public and private cloud, with a flexible infrastructure that can connect, and scale based on your changing priorities. It provides the capability to effectively select and use network functions from the cloud edge for all users, giving more capability embedded in the cloud and less at the edge and on-site. It can also direct services from all suppliers into a centralised and managed fabric with a single interface and service wrap.

Indicators

- Virtual deployment of SD-WANs, security and other network functions into cloud environments.
- Cost efficient transit and transition between cloud end points.
- Flexible bandwidths and capability to modify connectivity types and change functions using on-demand portals / catalogues.
- Commercial and innovative costs based on consumption models.
- Deployment of a consistent cloud experience across the globe.
- Assurance and confidence around security and emerging threats.

Our cloud blueprint view



- Service management
- Core products
- Third party products and embedded services

Our cloud blueprint not only brings together where your data and services reside but also how they are retrieved across all users and personas. It also includes a view of what other functions are needed to optimise the experience: security, connectivity, virtualised functions and visibility or monitoring.

The objectives of Cloud Networking

Cloud Networking is designed to simplify private and public cloud hosting services, saving you time and resources. It also delivers better collaboration experiences, app performance and cost improvements with enhanced connectivity for remote users across geographies.

You'll be able to:

- retain non-cloud capable apps in private data centres, but reduce cost and improve performance
- move cloud capable apps from private data centres
- deliver overall cost transformation and defined predictable budgeting for operating expenses
- reduce on-site equipment, requiring less 'manage, configure and maintain' activity
- enhance and monitor security against growing threats, like Distributed Denial of Service (DDoS) attacks
- simplify the setup of new offices and joiners
- become more service orientated, with always on services available
- better define and align Service Level Agreements (SLAs)
- simplify complex data centre network architectures
- provide better reporting and management across the cloud spaces.

Why now?

80% of business are already looking at cloud first strategies, but lack the necessary skills to deploy them. As complexity increases, with the addition of more devices, users, sites, clouds, applications and increased security risks – cloud networking will alleviate pressure on your resources. And by optimising user experience globally, you can use cloud networking to gain a competitive edge in your markets.

Further benefits:

- lower overheads and a flexible, more adaptable infrastructure
- consistent security and protection against an ever-changing landscape
- organisations expect to have between 5-7 cloud services available, so cloud networking can help you manage them effectively
- better user experience, with scalable, simplified and improved connectivity
- increased data and the ability to store it
- renewed insight to open new opportunities in the developing digital world.

Building characteristics of a dynamic cloud networking architecture

More connected clouds allows you to access comprehensive interconnectivity platforms, providing the choice and scope needed for a dynamic network. It solves the complex challenges of hybrid, multi and cloud to cloud networking, with solution capability and catalogues configured to your needs.

Further benefits:

- CapEx-light deployment, with flexibility to change over a contract term
- fast time to market through pre-deployed infrastructure, with automation via infrastructure-as-code blueprints
- pre-connected, high-performance interconnections to multiple cloud providers in strategic, low-latency locations
- scaled and accelerated deployment for our network services, leveraging our node investment and shared services access
- future-proofed, with fit to SD-WAN adoption, hybrid underlay network design, and transition to a zero-owned data centre architecture
- repeatable and consistent service across multiple geographies, with global locations and expanding reach through fabric connectivity
- supports a range of SD-WAN and security deployments to ensure a consistent experience worldwide
- enables interconnection with colocation offerings, ensuring you have full control over the infrastructure you have available for your cloud architecture
- optimise costs of transit through routing of intercloud and intracloud traffic via private BT connectivity.

Key considerations

Identifying and specifying the right cloud networking solution depends on managing three areas – cloud transformation, choosing the right cloud partner and the security of infrastructure and data. Addressing these considerations lets us develop a blueprint customised to the specific needs of your business.

Cloud transformation

- Cloud 2.0 is here – scaled adoption of cloud is driving higher connectivity rates to more clouds in more locations. This is feeding the market for interconnected hubs into cloud hyperscalers and SaaS providers.
- Inside the cloud, SD-WAN and virtual functions are providing cloud-native flexible connectivity direct to applications. Build cloud and SD-WAN strategies together or ensure they join-up.
- Increased use of multi-cloud is driving the interconnection requirements with and between clouds, with the subsequent need to manage transit cost, complexity, and observability.
- Consider what protection is available across the various cloud options and if “high value” data needs to be kept on-site for performance or security reasons.
- Is there a cloud eco-system for your business vertical, where you can connect to your industry partners seamlessly i.e. SaaS, IaaS, PaaS?
- Moving to cloud will affect performance and latency for your users because of new connectivity. Some applications can be very sensitive to latency.
- Some legacy apps will not transform into cloud operating stacks. Do you know what these are?
- Do you need to connect into multiple regions or geographies to serve your users? These regional instances may hinder your data retrieval or reporting systems.
- Non cloud-native apps will need services which give agility and reduce your footprints in legacy data centre estates.

Key actions

- Model the sums and check the cost dynamics as hyperscalers launch new zones and move from regional to local connectivity.
- Decide how to measure, track and interact across all the clouds you select.
- Understand where you will need to accelerate the performance of SaaS applications for decent user responses. What type of connectivity will you need for each location?
- Check how Internet Service Providers (ISPs) peer into cloud, find out what connectivity or on-ramp they have into your prospective cloud provider.
- Research what customer / private data can be stored in which cloud and in which geography.
- Check you’ve got the right people and skills to enable a multi-cloud strategy – to manage suppliers and connections.
- Create plans to manage the migration of users and data into the cloud.
- Assess which personas in your organisation may need private connectivity for performance or additional security for data sensitivity, identify these and factor in this cost.

Cloud partners

- Consider which data and cloud provider has the footprint to suit your overall cloud sourcing strategy. Pushing more into the same cloud should reduce your overall spend.
- Will you need more monitoring capability to have visibility of what's happening in the cloud in order to hold different providers to performance and SLAs? How can you get performance information from the cloud integrated into your current reporting engines?
- Would a cloud service broker, who overlays managed service across all clouds offer value?
- What skill sets do you have inside and what expertise will you buy-in?

Key actions

- Model costs using historic network data. Cloud provider tariffs will vary based on retrieval and upload of data across the world based on per-use basis.
- Quantify the savings you could make and what costs you will incur on the project, so that you can articulate your business case for change – benchmark the expected gains.
- Assess and choose a trusted and credible network partner with a strong portfolio and history of customer transformations who can help you manage suppliers and build your business case for change.
- Develop a 'Cloud Centre of Excellence' within your business to bring together network, cloud, and security teams and aspirations and clarify objectives with your peers.
- If using in-house skills, develop a robust training and retention programme with agreed succession plans.

Security

- Do you know where your mission-critical virtual assets are stored at the moment and where they will be stored in the transformed infrastructure? Will they still be secure?
- Will any data cause harm to the business if leaked or lost?
- What developments are happening in your business and what does that mean to the data you need to store?
- How do you scale your security policy as your number of cloud services increases?
- What's your unified multi-cloud strategy to unite security across your cloud eco-system? Have you got sufficient visibility to identify and plug gaps across all vendors?

Key actions

- Assess and build a data classification policy - a significant percentage of data stored in the cloud contains sensitive information and will need protecting.
- Understand geographically where your data will be stored, and whether this meets regulation and your own compliance requirements.
- Make sure you don't lose control of your data in the cloud, it's very easy for cloud storage to become your data "blind spot".

Why us?

We bring cloud network solutions together for our customers, using our cloud partners and deeply interconnected network. We use APIs to integrate with vendors and service tools so that we can provide a managed seamless cloud experience, one that performs for your users and customers.

Our expertise and experience across all major cloud providers, our own compute facilities and those of our partners mean we can deliver performant cloud services across the globe at pace and scale. Whether you're looking at moving to public cloud, private cloud, or wanting to host services in your own data centre, we can provide ways to improve cost and accelerate your transformation.

We believe security is an integral part of the journey to cloud networking, not a standalone practice. We've been there, so you can draw on our experience. Keeping control, visibility and security as you build into the cloud will mean that you can adapt to business demands. With the right integration between the cloud and your existing network, you'll be better placed to embrace any future changes.

We have 100 years of networking heritage and provide an ecosystem of partners who work with us to make better solutions for our customers.

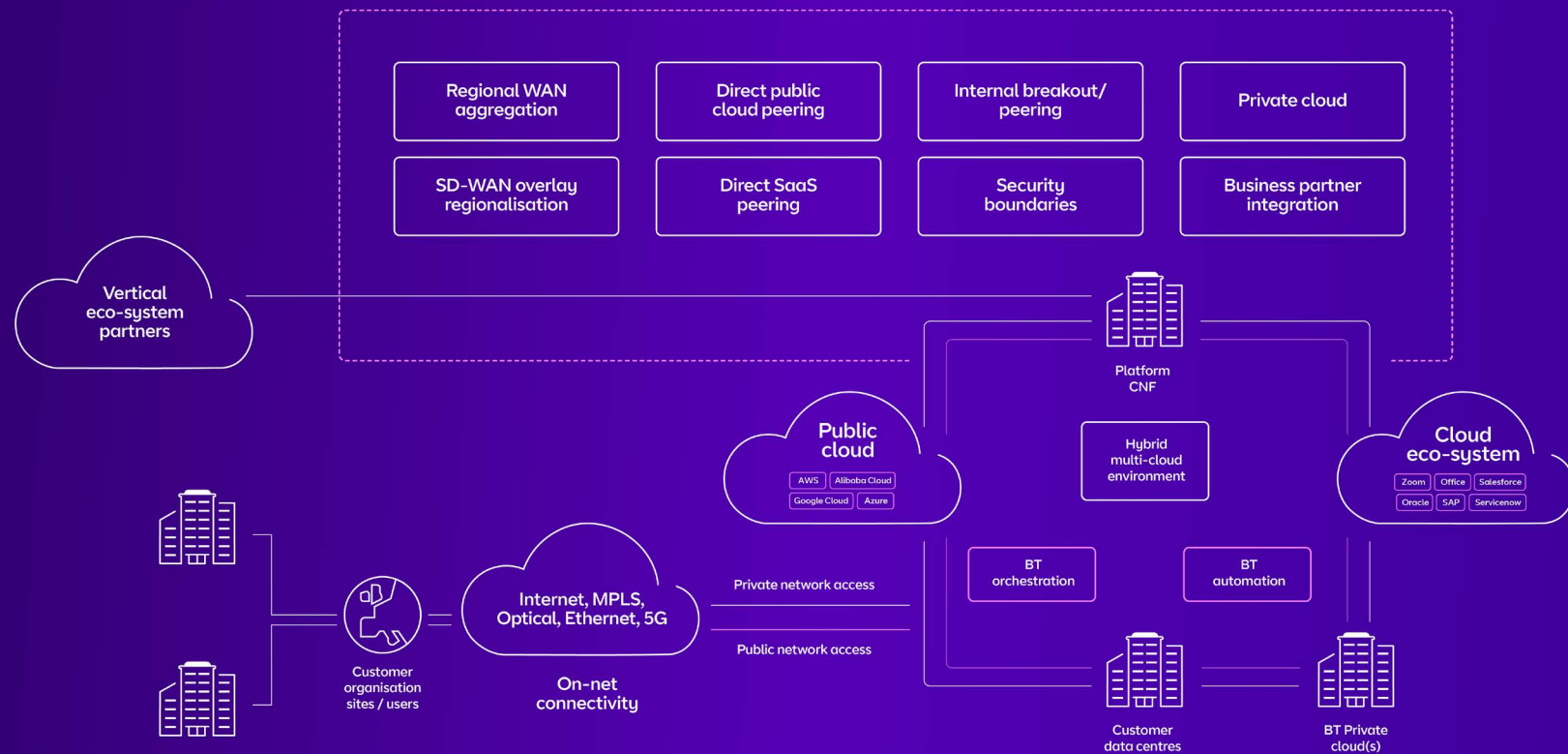
Our methodology

We have a unique approach to supporting organisations through their digital transformation journeys, developed through our experience of delivering successful transformations for multinationals around the globe.

Our approach includes help to:

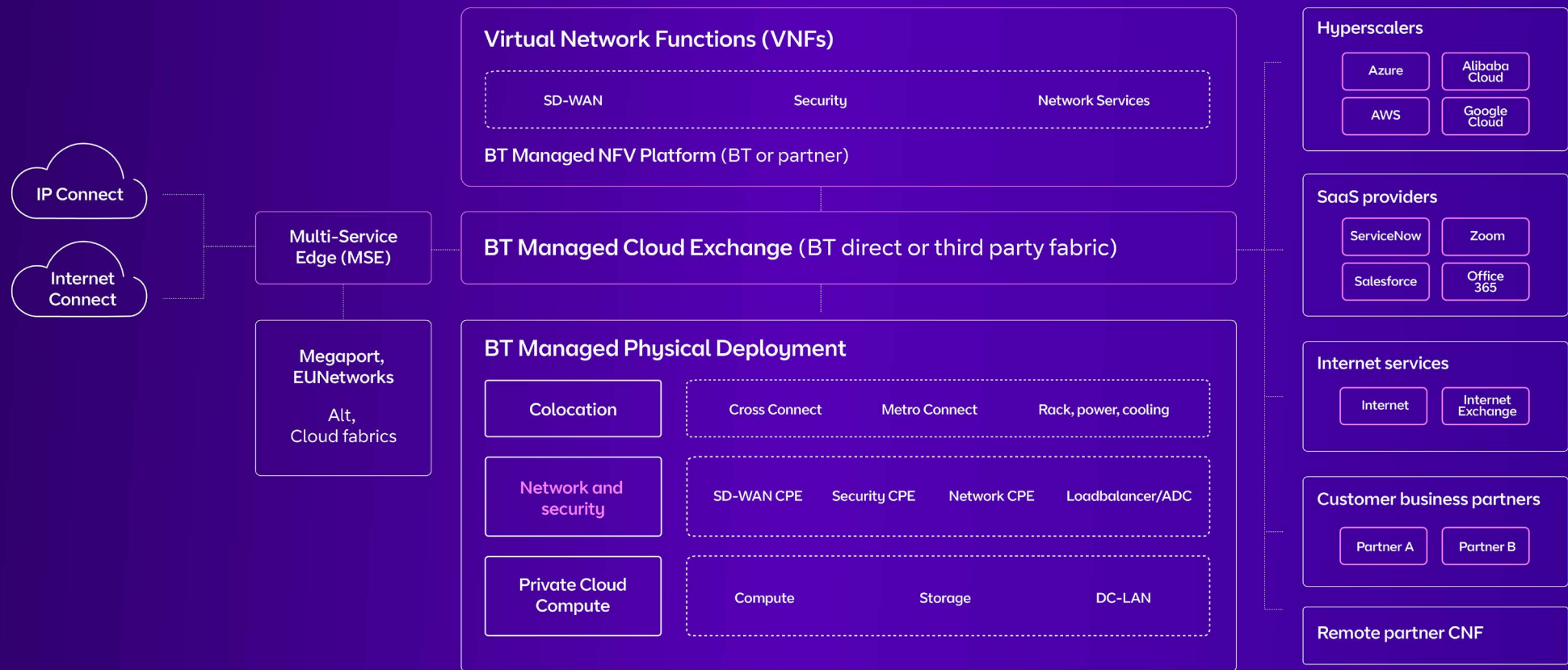
- define blueprints - using artifacts to design and steer customers to the right solutions
- build transition plans which reduce risk and increase speed to outcomes
- develop service models to automate and orchestrate change.

BT connecting to all clouds



Our approach to the cloud is that not one size fits all and that different models will be needed, built around the objectives defined by your business. We look to support many different needs across our portfolio, but ultimately have the ability to join them all together with a single service wrap using our digital tooling.

Our cloud networking services



This represents the connectivity we've put in place with Equinix into their CNF's. The hub at the edge of the cloud connects us to a rich content and partner zone where, we can deploy and virtualise services for consumption. Predefined and scalable SD connectivity from our core network provides resilience paths into an array of service providers and content. Interconnected into the Equinix core, it's also a meeting point for third party suppliers, Internet providers and network aggregators, where you're able to digitally select a catalogue of virtual and physical services from software and network function catalogues.

Customer references

Case studies

BT for global business

Reaching new heights with smarter cloud infrastructure

[Read case study >](#)

BT for global business

Helping FCA Automotive Services bring its contact centre in-house

[Read case study >](#)

BT for global business

Putting the power behind Hotelbeds' soaring business

[Read case study >](#)

Press releases / blogs

BT for global business

BT nurtures partnership with Syngenta to support global connectivity and innovation culture

[Read blog >](#)

BT for global business

Why a cloud management platform is critical in a multi-cloud environment

[Read blog >](#)

BT for global business

How to get the best of both private and public cloud voice

[Read blog >](#)

Would you like to talk to our experts?

We're ready and waiting to help you take the next step in solving your infrastructure puzzle. To find out more, get in touch with your account manager.

[See more blueprints](#)

Offices worldwide

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