# SDx:
# Now or later?

## Define your path with a consultative transformation process that accelerates the benefits

**orange**™ **Business Services**

# Executive summary

**Software-defined technology is advancing rapidly to replace legacy infrastructure and improve business agility.**

However, software-defined (SDx) technology is still maturing. Therefore in order to embark on a SDx transformation with maximal results and success, Orange Business Services has developed a consultative transformation process to reach your future-proof global solution.

SDx only provides agility when deployed and designed properly with alignment to the business objectives. Before starting deployment, it is essential to gauge your readiness to adopt and transform.

Our approach enables a transformation journey with defined phases that you select based on your readiness level. Each phase provides deliverables that you can leverage to form your strategy, business case and practical intelligence to enable the most effective and successful transformation to SDx.

## Contents

# What is SDx?

**SDx stands for software-defined whereby "x" can be any infrastructure normally deployed in the physical sense. For example, there is software-defined networking (SDN), software-defined wide area network (SD-WAN), and software-defined local area network (SD-LAN).**

Software-defined technology is becoming the new norm as it replaces the physical infrastructure. Enterprises now commonly support their IT and business with a software-based application or service, delivered via the cloud or as a virtualized function.

With SDx, not all physical infrastructure disappears, but the intention is to minimize the number of physical devices and consolidating functions onto a single device.

SDx introduces agility by providing flexibility and faster response time to business change with a software-defined approach.

# What are the key business drivers for SDx?

**There are several different business reasons for SDx adoption. These can be broadly divided into strategic business issues, infrastructure concerns and operational improvements.**

## 1 Strategic business issues

One of the main drivers for SDx is the requirement of IT departments to offer **faster** services to the business with effectively **flat budgets**. Increasing volumes of data, services and video are running over corporate networks, and older networks are often too inflexible to handle these large increases in Internet-related traffic.

In addition, SDx can help increase **business agility** and **innovation** by accelerating the time to market for new services or new business locations. Finally, by having **security** and location-awareness built in by design, SDx can also help to secure intellectual property and corporate data.

## 2 Infrastructure concerns

SDx helps consolidate enterprise infrastructure that typically has grown organically over the years, frequently through acquisition. Having multiple suppliers for global networks and a variety of vendor technologies is often inflexible and hard to manage consistently.
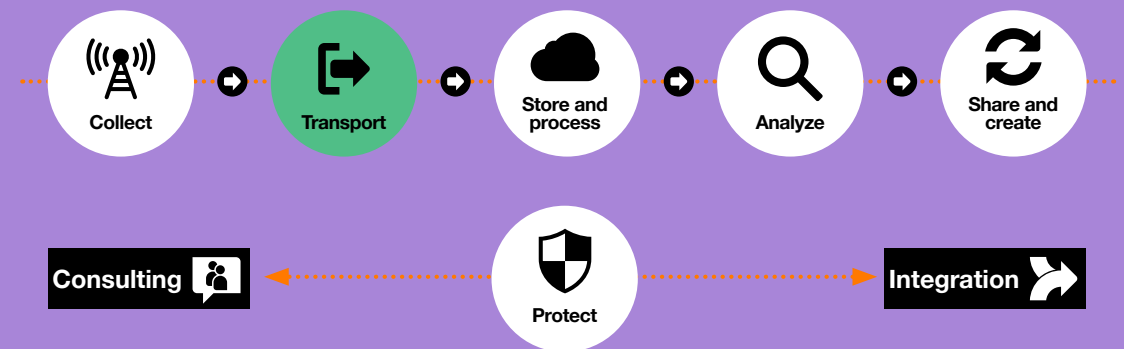
From a network viewpoint, SDx helps simplify this by deploying a **single overlay network** that is based on application policy controls. SDx can virtualize functions or services (security, optimization, session border control) that traditionally require their own appliance and software, reducing the need to manage physical infrastructure capability vs license releases. In addition, the flexibility of SDx is particularly well suited to help on-board new acquisition sites or to close sites related to divestments or specific limited projects.

## 3 Operational improvement

A significant benefit of SDx is that it allows you to manage the policies and SLAs related to the bandwidth that an application needs on a **site by site basis**. You can chose the access type against that policy or KPI to leverage less costly access with usage-based subscription models. SDx orchestration and portals can provide visibility at the IT level to enable better operational efficiency and to build intelligence for further investments.

SDx can also support end-user expectations and help improve productivity more effectively. However, this may require other tools to complement the application SLA policies to assure **end-to-end visibility benchmarking**. Having complementary visibility and monitoring tools allows you to understand, predict and measure the impact of any IT investment on end-user experience. This ultimately will enable you to establish performance benchmarks linked to business performance objectives.

**Meet your business challenges with SDx through the Orange Data Journey**
**Key enabler for business ecosystem value creation**



Collect → Transport → Store and process → Analyze → Share and create

Consulting ← Protect → Integration

**Supporting our customers in each step of their data journey**

# Define your path with Orange SDx consultancy

## Laying the groundwork to enable your SDx adoption process.

### Customer top challenges

1. **Being agile to on-board new acquisition**
2. **End-user experience control and performance**
3. **Optimizing cost while increasing bandwidth**
4. **Lack of automation and non-streamlined business processes**

To deal with all these challenges it is important to take a methodical approach to SDx transformation. With our business and advisory consulting methodology, we leverage a process that starts with the educational foundation of SDx, right through to the full realization of the SDx transformation of your IT and infrastructure environment.

You first need to understand how SDx can transform your infrastructure to support your business objectives. Each step of the journey has a methodology and a set of deliverables that you can leverage for your internal business case validation and stakeholder approvals.

To capture this information, we run a series of workshops that enable you to establish the requirements and expectations you want to gain as you transform to SDx.
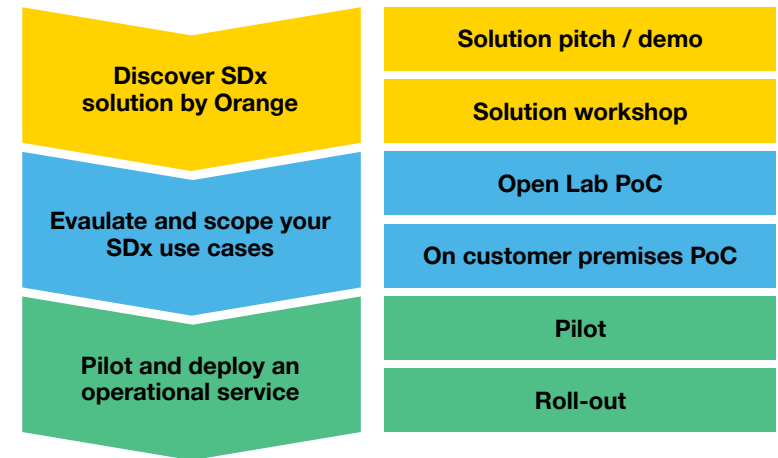
### Discovery workshop

In the discovery phase of the digital journey, you can gauge your understanding of SDx and how to apply it to your business objectives. It is designed to help you plan your network transformation roadmap and learn more about the potential of the technology.

- Get an overview of the latest technological trends and market
- Identify business benefits from new technologies
- Learn how SDx changes the way to design, implement and manage networks
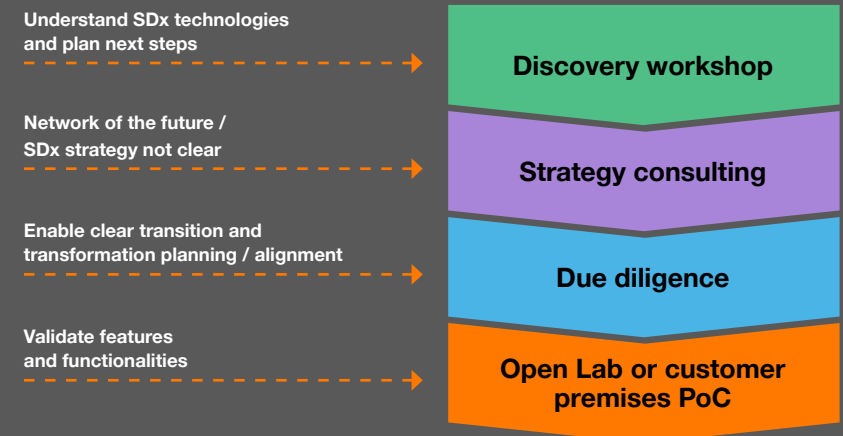- Benchmark approach with other customers and Orange

### Due diligence phase

The due diligence phase is probably the most important phase as it consolidates all the relevant data and intelligence to form your SDx transformation journey and design. It involves gathering data related to your infrastructure, applications, site profiles and security policies. If such information is not readily available, then a visibility approach is recommended, which is defined later in this whitepaper on page 6.

## Our SDx journey

| Discover SDx solution by Orange | Solution pitch / demo |
| --- | --- |
| | Solution workshop |
| Evaulate and scope your SDx use cases | Open Lab PoC |
| | On customer premises PoC |
| Pilot and deploy an operational service | Pilot |
| | Roll-out |

## Discovery of SDx

| | |
| --- | --- |
| Understand SDx technologies and plan next steps | **Discovery workshop** |
| Network of the future / SDx strategy not clear | **Strategy consulting** |
| Enable clear transition and transformation planning / alignment | **Due diligence** |
| Validate features and functionalities | **Open Lab or customer premises PoC** |

# Orange SDx consultancy: technology choice and testing

**Helping you choose the right technology in a rapidly changing marketplace.**

## OpenLab proof of concept

There are many SDx technology vendors in the market and they are still maturing. So what is the most practical way to learn about SDx technology and compare vendors?

For some, a proof of concept (PoC) via an OpenLab is a quick and practical way to gain understanding of the technology, the use cases and functional test outcomes. It allows you to witness the SDx prototype solution in a closed and safe environment, without impacting your business production environment.

- The OpenLab is typically structured with a standard test of use cases over a few days

- OpenLabs can be executed virtually from anywhere, at any time or on-site where we physically host the SDx environment

- OpenLabs provide an education of SDx and an understanding of its capability – and can be adopted internally and mapped to the business performance objective

## On-premise PoC and pilot

For other enterprises, learning how SDx fits your business, applications and end-user needs is best experienced in the live environment. This can be done either in an on-premise PoC or pilot to gain the full experience of a managed service. Either of these production mode test phases defines the SDx design and service blueprint you want to have delivered for your end-users and the business applications they use.

**On-premise PoC typical scope**

- Limit to three types of sites (data center, remote, cloud) to maximize time on test plan execution and the results

- Deployed at brownfield sites using existing access but with a subset of traffic separated from production environment to avoid continuity risks

- Does not include an operational or SLA commitment, which is a key difference to the pilot

**Pilot typical scope**

- Limit to five sites to realize results within one to two months

- Runs over a full production environment that is migrated to SDx with a self-care portal and operational support

- Includes your application policies built from a visibility assessment that discovers your application landscape and baselines end-user experience prior to SDx deployment and then compared after SDx deployment

# Gain visibility with Orange SDx consultancy

**Visibility as a use case enabling SDx transformation success, which helps you to determine your applications performance and end-user experience KPIs.**

Applications and end-user experience are a key part of the SDx transformation process, because SDx places the focus on applications that are supported by virtualized services or migrated to the cloud. To make your transformation a success, you need to establish the required quality of experience (QoE) or service level agreement (SLA) policies that must be applied to those business-critical applications.

Therefore, as part of the SDx consultative journey, we strongly recommend including visibility and monitoring in the due diligence process as mentioned earlier in this white paper with the following types of assessments and pilots.

### Application discovery assessment

Obtaining a current view of your existing infrastructure and application landscape will help to baseline before the SDx transformation. If you don't know your applications, then an application discovery assessment can be performed leveraging your own tools and data or using our recommended tools.

**Technology partners:** InfoVista, Riverbed Netprofiler

### End user experience (EUE) change impact assessment

One other common overlooked part of the SDx transformation readiness is to understand the end-user perception of the current service. End-user perception is prone to subjectivity. Even if all the IT and infrastructure monitoring dashboards indicate good performance, it won't help to convince those end-users who are experiencing the opposite.

This is why an end-user experience change impact assessment is critical to objectively establish the perception from the end-user's desktop. Combining these two baseline assessments establishes the key performance indicators (KPI) that SDx is expected to achieve or maintain. The KPIs will form the application mapping dependency table that includes the QoE policies and minimal SLA thresholds of each critical application that will be configured on your overlay network.

**Technology partner:** Riverbed Aternity

### SDx continued visibility

While in SDx transformation and beyond, ongoing visibility and monitoring is key to maintaining the defined benchmarks or KPIs that support the app-aware policies. At some, point optimization of those policies may be necessary. Ongoing monitoring is also critical to operational performance to help identify the root cause of any issues while justifying additional investments such as bandwidth upgrades or more SDx deployments.

**Technology partners:** LiveAction, Thousand Eyes

# SDx consultancy: case studies

**We have helped a wide range of companies in many different verticals make a successful transition to SDx. Here are some examples.**

## Global pharmaceutical company

**SDx transformation from OpenLab PoC to pilot using a brownfield approach..**

This global pharmaceutical company has over 30,000 employees in 74 countries. It wanted to transform its network with SD-WAN and unified communications (UC). It also wanted to capitalize on the investment it had made in Riverbed WAN optimization in the prior year.

- Solution kick off workshop: SD-WAN design with UC and WAN optimization
- OpenLab PoC over several Orange sites in US, which emulated customer environment
- Tested solution interaction with Riverbed investment using Cisco Viptela traffic marking
- No impact on production environment

After the results of the PoC were presented, we ran a pilot at six regional sites over two months, including three datacenters. This fully established the SD-WAN blueprint design and service in advance of the full rollout.

## Global chemical manufacturer

**SDx transformation from OpenLab to pilot to rollout with an overlay integrator and MSI approach.**

This global chemical manufacturer has 150,000 employees in over 80 countries. It wanted to enable global inter-regional communication while maintaining interoperability with its MPLS environment. The manufacturer saw SD-WAN technology as the enabler to this strategy, including the support of its voice and video performance requirements.

- Solution demo using Cisco SD-WAN OpenLab over two days
- 20-site SD-WAN pilot over two different underlay provider networks
- Orange provides overlay management and coordinates with underlay providers

At the successful conclusion of the pilot, a SD-WAN overlay network was rolled out to 900 sites with third-party regional underlay providers. As part of this deployment, we used our multi-sourcing service integration (MSI) approach whereby we manage the contracted providers and infrastructure on behalf of this customer with SLA guarantees on the service and performance.

## Global manufacturer

**SDx transformation from on-premise PoC to pilot using a greenfield approach.**

This global manufacturer has nearly 400,000 employees in 200 countries. It was looking to reduce its WAN costs by 50% until 2020 and support a threefold bandwidth increase by replacing MPLS with Internet. The manufacturer wanted a next-generation network solution to reduce complexity, which could support cloud, wireless and IoT ambitions while maintaining security and performance.

- OpenLab PoC comparing Juniper and Cisco
- Selected Cisco Viptela SD-WAN and Cisco uCPE technology
- Deployed as 10-site pilot to qualify MPLS migration to SD-WAN blueprint design by site profile and defining best path selection policies

Orange is now consolidating all infrastructure services – optimization, security and WLAN into the SDN solution based on uCPE . The next project phase is transforming the remainder of the 1,500 MPLS sites to a full SDN solution based on mostly Internet using Orange Next Generation (NextGen) SDx Hubs and portal management tools hosted in the Orange cloud.

## Global beverage maker

**SDx transformation from on-premise PoC to pilot using a greenfield approach.**

This global beverage maker has 12,000 employees in 120 countries. It was growing rapidly through acquisitions, especially in Asia, and had a requirement for fast, secure and agile network deployment. The company was using cloud services for fast adoption and needed local internet breakout.

- On-premise PoC over two sites validating Cisco SD-WAN with Internet
- 10-site pilot at greenfield acquisitions in Europe, APAC and China
- Customer has MPLS sites with another provider
- Gateway at data center for overlay network to MPLS sites
- Controlled via cloud-hosted Element Management System (EMS)

Since the pilot, the overlay SD-WAN solution has been rolled out to over 30 production sites that included more acquisition locations and legacy MPLS sites. Through this guided process, the customer has seen improvement on change management and faster deployment lead times.

# Why Orange?

**Orange Business Services is a recognized SDx leader by various analysts. In the Gartner Magic Quadrant for Network Services, Orange is a leader and with the highest rating at "Ability to Execute".**

Orange has an established SDx customer journey framework that has enabled many global customer deployments with networks as large as 1,500 sites. With some of these global deployments, we have taken a co-development consulting approach whereby innovating together and with our partners to successfully:

- Deploy and support SD-WAN in China

- Deploy Voice over SD-WAN

- Integrate legacy or new WAN optimization vendors with SD-WAN

We've accomplished these deployments and co-development thanks to having more than 350 SDx certified or experienced consultants, engineers and operational experts globally.

We are deploying one of the most innovative next-generation hubs supporting on-demand services, cloud connectivity, access and backbone networks. Over 20 next-generation hubs are deployed covering all regions and we are extending our footprint with another five hubs before end of 2019. Our next-generation hubs are recognized by analysts as one of the most extended and integrated networks committed to supporting from the edge infrastructure up to the application level.

**Visit us at https://www.orange-business.com/ en/products/consulting-services-translate- business-benefits-digital-technologies**

On demand virtualized services

Cloud connectivity services

Dynamic path routing

SD-WAN gateway

Cloud connections

Acceleration

DC-2 DC links

Flexible security

Next Gen Hub

BVPN POP

SBC

Local internet access (VMI)

MPLS Backbone

3G / 4G / 5G

Local access network pioneering

OTI / Tier 1 Internet backbone

Access networks

Backbone networks

**orange™ Business Services**