

# Dr. Max Group: IXP services for Enterprise

Customer Views  
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# Dr. Max Group: IXP services for Enterprise

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## Agenda

- Dr.Max Group introduction
- The needs for an IXP in an Enterprise company
- Using an IXP
- Benefits of using an IXP
- Future challenges
- Q&A



**8**

countries



more than

**16,000**

employees



**2,300**

pharmacies



**4**

in Europe



**1**

in Central  
Europe



**1,400,000**

sold items/day



**8,000,000**

members of benefit  
program



more than

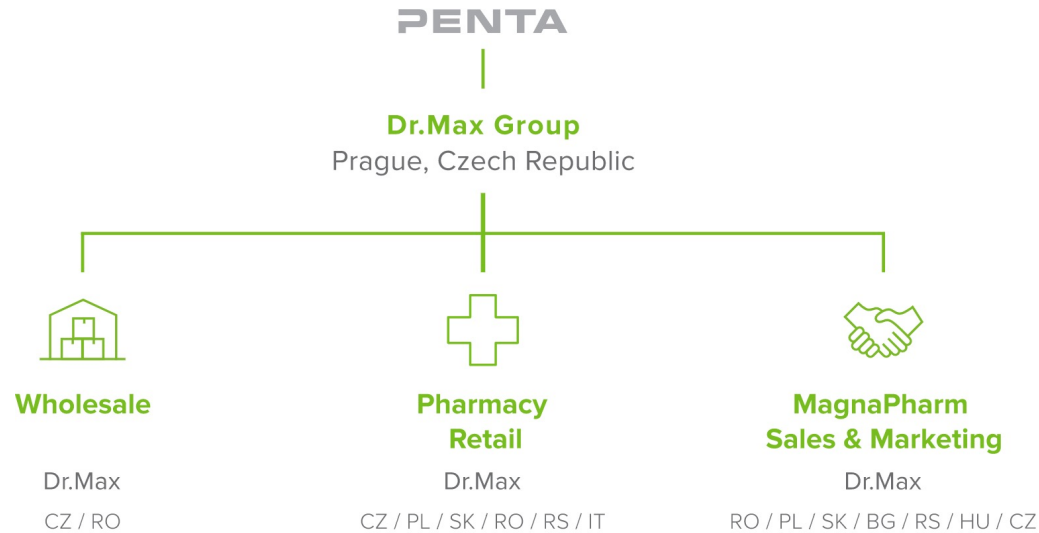
**700**

branded products



**2**

central  
laboratories

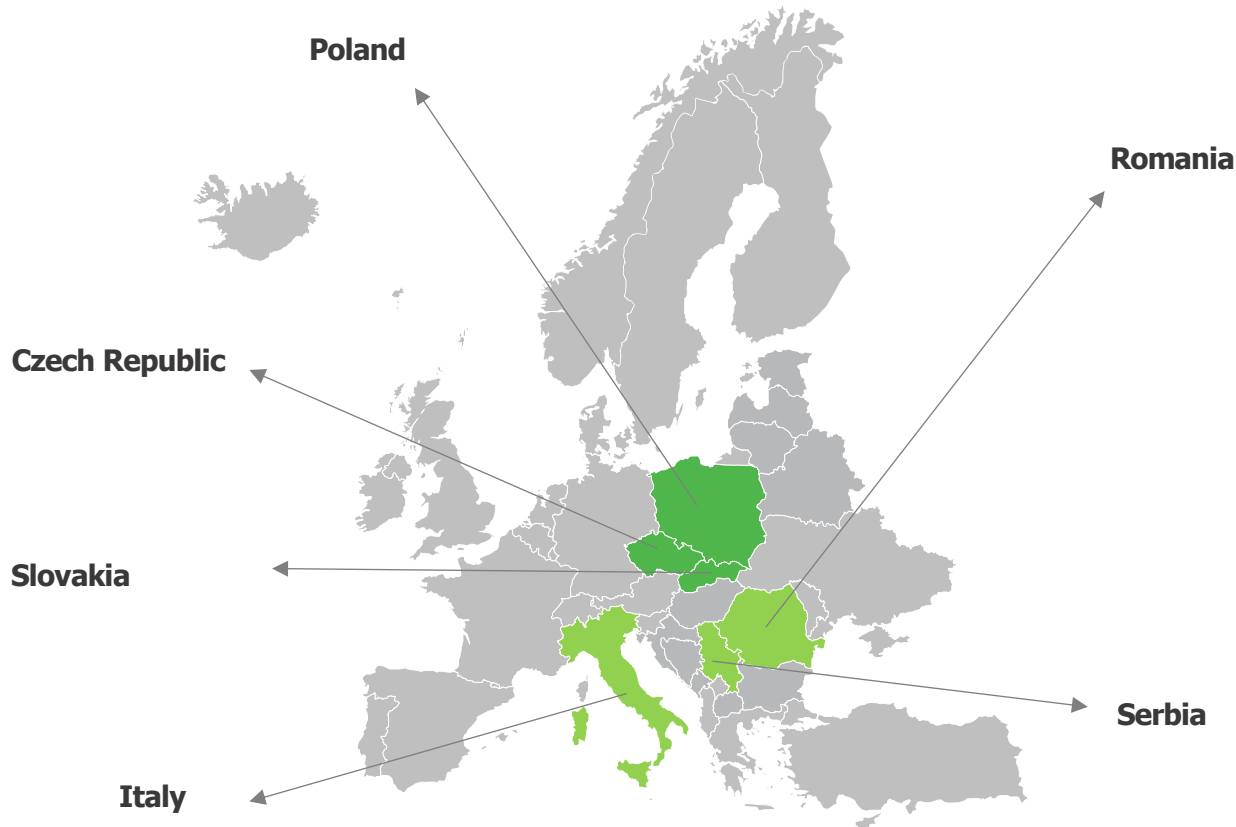


## Our Mission

To be a leader in the pharmaceutical industry by being the most accessible pharmacy in every meaning of the word:

- The most affordable and inclusive (for everyone)
- The most accessible (physically and digitally, via bricks & mortar & e-shop)
- The most welcoming (helpful and professional staff)

# Dr. Max Pharmacies in Europe



# The needs for an IXP in an Enterprise company

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## Business needs

- **Pharmacies should always be online**
  - (e-)Prescription validation (incl. risks of adverse effects or overdosing)
  - State medicine & healthcare regulatory agencies/drug control institutes
  - Health insurance links
  - Payment terminals
  - Tax registrations
  - Inventory status & updates
  - Loyalty programmes
  - Physical security
  - Internal & External collaboration tools
  - ...
- **Employees can be anywhere on the Internet**
  - Homeworking etc.
- **E-shop customers are everywhere on the Internet**
  - Good connectivity is a part of overall customer experience

# The needs for an IXP in an Enterprise company

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## IT infrastructure needs

- **International WAN and highly centralized IT infrastructure**
  - Spokes: Retail pharmacies, wholesale warehouses, labs, offices and small DCs dispersed over Europe
  - Hubs: 2 large private cloud IaaS „on-premise“ datacenters
  - Central Dr.Max (Group) networking team - not per country
- **“Classic” private enterprise WAN services sometimes unsatisfactory**
  - High cost per Mbps, especially for international links
  - Not flexible, rigid – changes are time consuming and costly, additional features are not possible etc.
  - Private nature of the service is not really a benefit for us
  - Managed services are not really a benefit for us
  - SLA guarantees are a benefit but with high price/performance ratio
  - SD-WAN SP managed offerings lock us with specific SP - coverage?, other countries?

# The needs for an IXP in an Enterprise company

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## IT infrastructure needs

- **Internet presence !**
  - Encrypted overlay tunnels are used anyway (currently in hub and spoke topology, with SD-WAN as emerging technology)
  - Higher capacities available
  - Much lower cost per Mbps
  - Combining low SLAs from multiple services can build resilient service
  - Homeworking employees and customers are already there
- **But...**
  - No one guarantees anything „on the Internet“ for end customers
  - The WAN is still business critical for us
  - Multiple private links & contracts with many ISPs?
- **Internet Exchange Point ?**
  - That is just for ISPs, right?
- **Internet Exchange Point !**
  - Our hub cloud IaaS datacenters are in the same co-location facility as major IXP
  - What do we need to use it?



# Using an IXP

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## Using NIX.CZ

- **Presence in Prague/CZE, Bratislava/SVK and Vienna/AUT**
  - 187 other networks - even from other countries
- **Initial knowledge and administrative barriers:**
  - 2x fiber cable link from Dr.Max IaaS (virtual) racks to IXP switches
  - Network staff able to understand and operate Internet routing
  - Public ASN
  - Public IPv4 range to announce
  - Public IPv6 range to announce
- Dr.Max Group decided to become RIPE NCC member (LIR) – to provide registry services for its Dr.Max entities in countries
- **We still need to buy transit connectivity (but in significantly lower volume)**
- **Seamless cooperation with NIX.CZ personnel**

# Benefits of using an IXP

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## Using NIX.CZ

- **Lower cost of Internet connectivity per Mbps**
  - Directly at IXP (hub, cloud IaaS datacentre)
  - Indirectly at spokes: pharmacies, warehouses, labs, offices, small DCs
- **One hop away from ISPs which provide connectivity for Dr.Max WAN remote sites**
  - Public peering VLAN: no intermediate ISPs in between, ISPs from different countries are present (even „Dr.Max important“ countries such as CZE, SVK, POL and SRB)
  - Private peering VLAN: CZE-SVK international connectivity with minimal latency and SLAs
  - We can have SLAs in WAN contracts!
- **Shorter paths to Dr.Max network result in minimal latency**
- **Very scalable capacity**
- **“Direct” link with content providers (Google, Microsoft, Amazon, Akamai)**
- **“Direct” link with security providers (Cloudflare)**
  - However, some of them are peering only when certain conditions are met ☹

# Future challenges

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## Enterprise networking trends

- **In-house operated Software Defined (SD-WAN)**
  - Direct Internet Access (DIA) feature bypasses the need for the data to travel to the hub (and thus IXP)
  - Security regulations may still require unknown traffic to be inspected in the hub
- **Public SaaS services usage**
  - Increased SaaS service usage will trigger more and more data to use DIA and thus bypass the hub
- **Azure/AWS/GCP/etc. clouds: migration of WAN hubs from on-premise DCs**
  - Moving the workload from „on-premise“ IaaS cloud to „big“ cloud with SD-WAN hubs will reduce the need for the private traffic to reach the hub

# Q&A

**Thank you**