BIG DATA

CLOUD COMPUTING

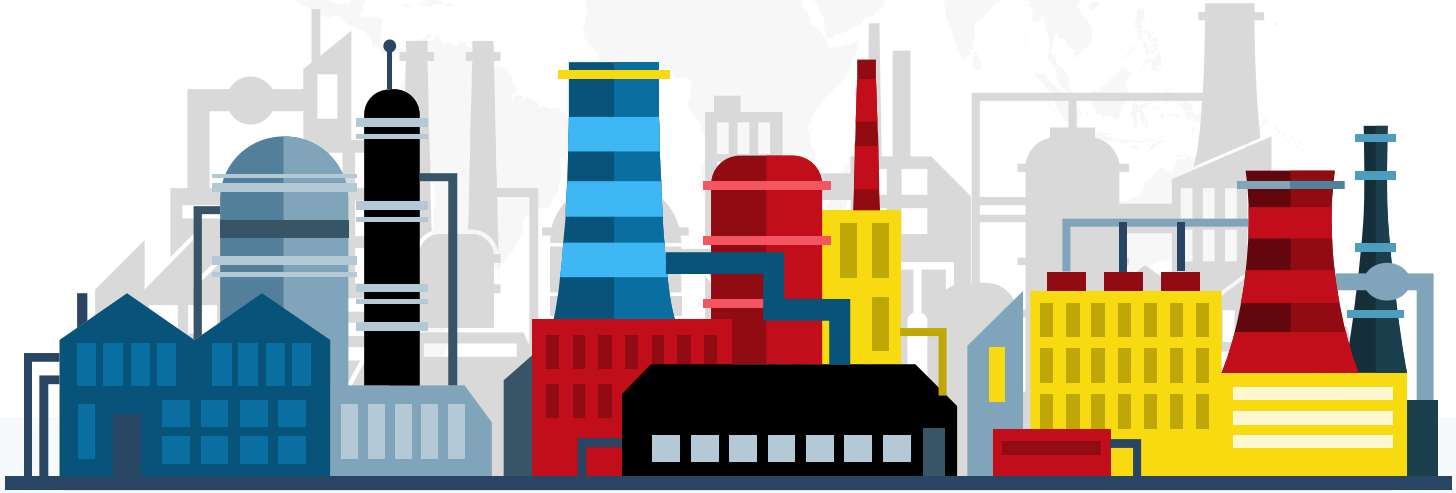
AUGMENTED REALITY

AUTOMATIC ROBOTIC

CYBER PHYSICAL SYSTEM

Transforming India into A Global Datacenter and Cloud Solutions Hub

DE-CIX Perspective



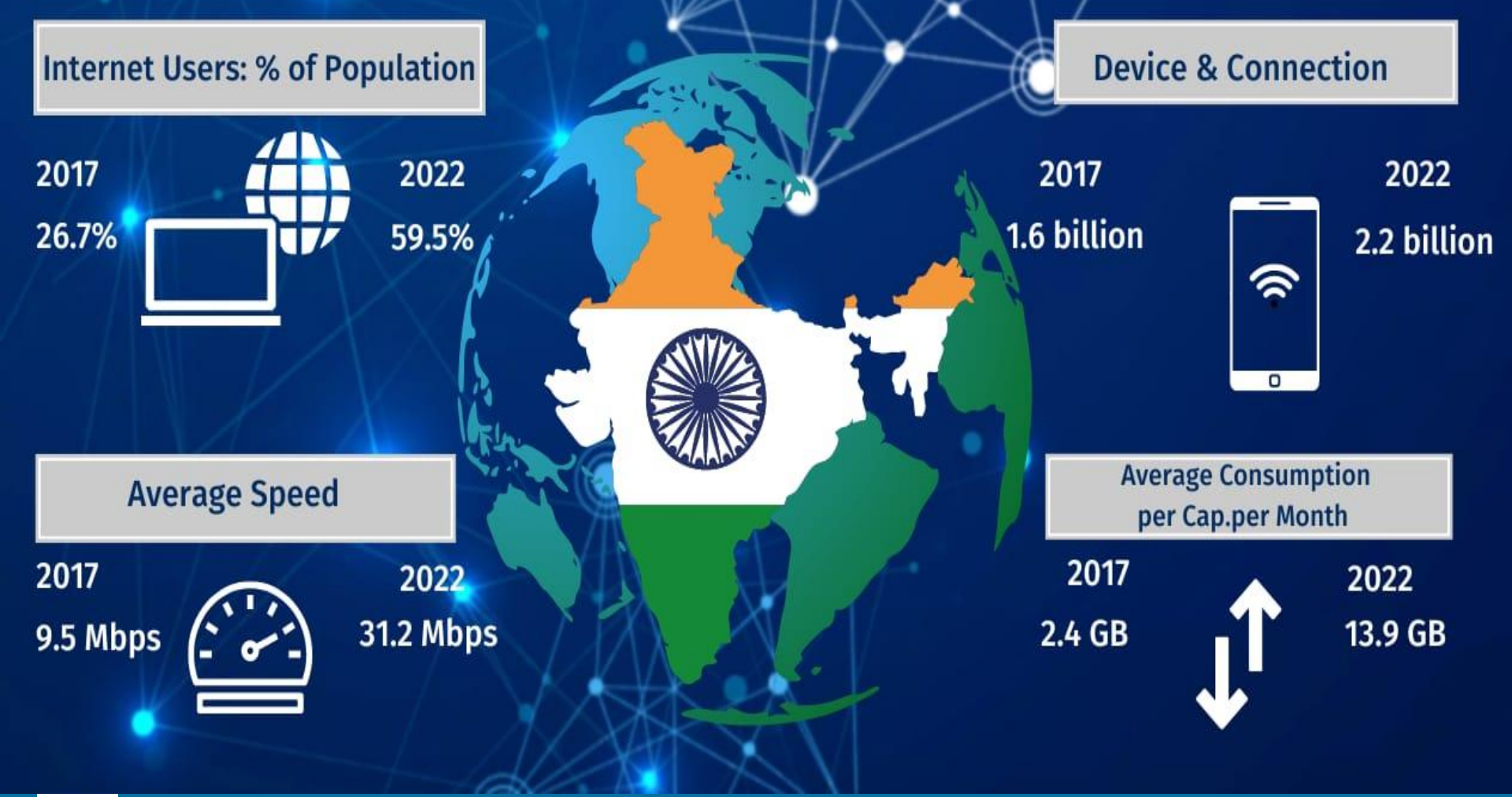
Indian DC Ecosystem

162 Colo Data Centers

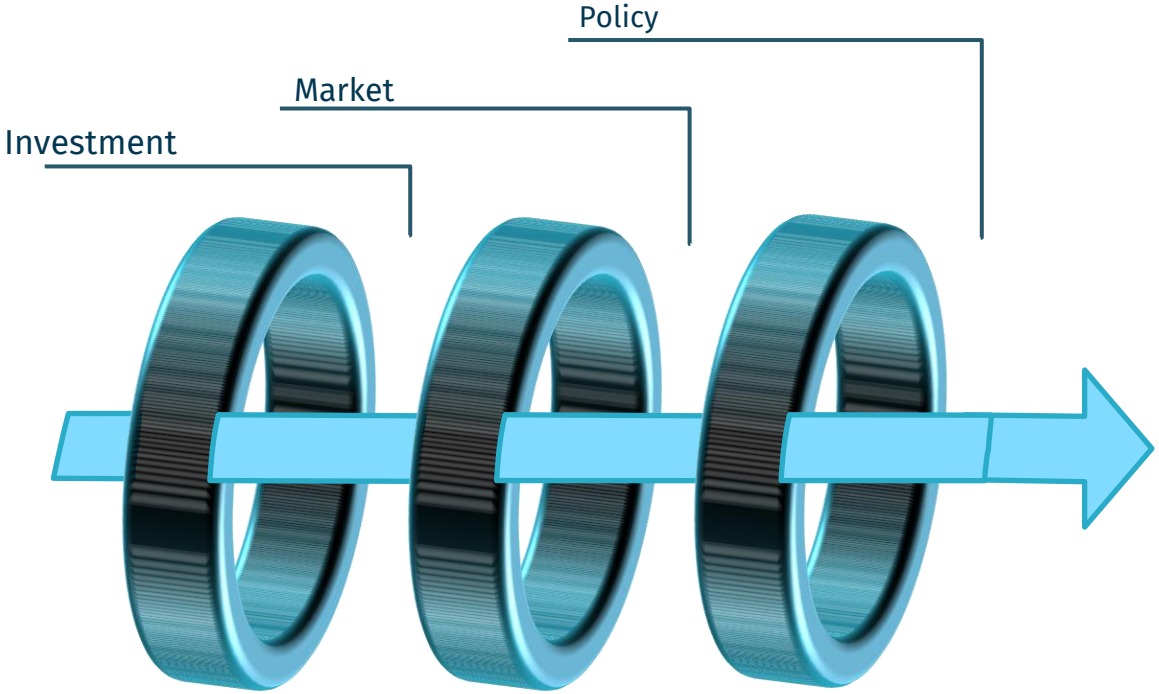
26 Cities DC Presence

19 Internet Exchange Point

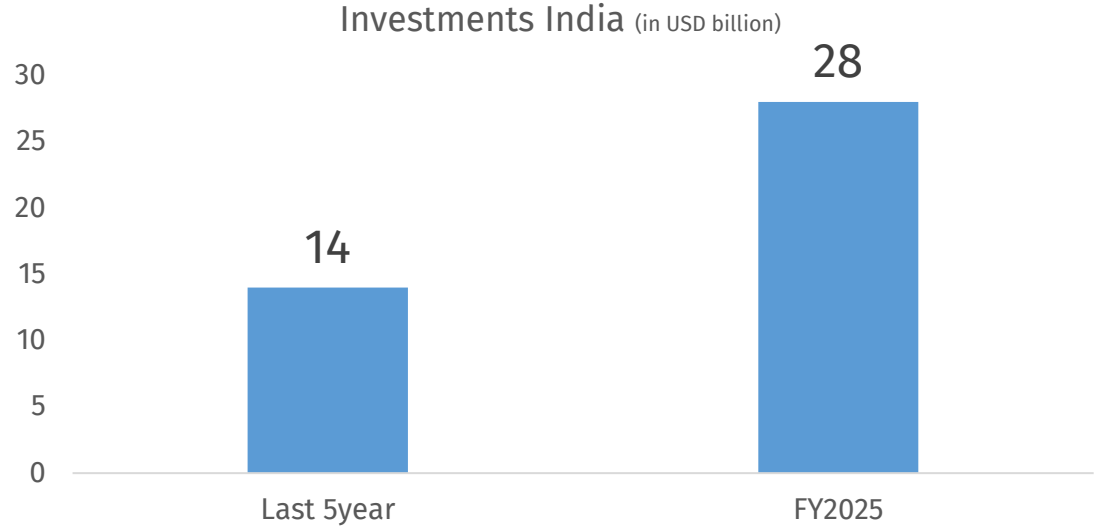
*Data Source: https://www.datacentermap.com/india/


Internet Users: % of Population
2017
26.7%
2022
59.5%
Device & Connection
2017
1.6 billion
2022
2.2 billion
Average Speed
2017
9.5 Mbps
2022
31.2 Mbps
Average Consumption
per Cap.per Month
2017
2.4 GB
2022
13.9 GB

Influencing Factor



Influencing Factor – Investments



aws

Microsoft

Google Cloud

colt
Data Centre Services

Web Werks

IRON MOUNTAIN

adani

Princeton Digital Group
Internet Infrastructure

DIGITAL REALTY

sify

DE CIX

NTT

STTelemedia
Global Data Centres

YOTTA

ascendas

Influencing Factor – Policy

Budget 20222-23 by Honourable of Finance Minister of India
Mrs. Nirmala Sitharaman on Feberuary'2022

Data is the new oil—and it is true that analytics, fintech, and internet of things (IoT) are changing the way we deal with our lives

UP CM Yogi Adityanath inaugurates North India's first hyperscale data centre Yotta D1 in Greater Noida

UP Policy Leading to greater Ease of Doing Business

- Capital Subsidy
- Interest Subsidy
- Land Subsidy
- Stamp duty
- Electricity duty
- Dual power grid
- Transmission & Wheeling

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Key Findings

Global Datacentre Market

- Over the period of 2019–2025, cumulative investments of $1.3 trillion are anticipated.
- IT infrastructure accounts for 77% of total datacenter investments; the remaining sum is invested in electrical and mechanical infrastructure and general construction.

India Datacentre Market

- Over the period 2019-2025, a total investment of $28 billion is expected.
- India is expected to grow at a CAGR of 5% between 2019 and 2025, which is twice as fast as the global average.

India's Competitive Advantage

1. The majority of investments are concentrated in Tier IV datacenters.
2. Cost advantage in operations and development
3. Engineering skill availability
4. Increased utilization of existing outsourced datacenter capacity
5. Service providers have accelerated planned expansions.

Major Datacenter Locations and Site Selection

- Mumbai, Chennai, Bengaluru, Hyderabad, and Delhi (NCR) - because they have good fiber connectivity, are close to customers, have a skilled workforce, and have submarine cable connectivity.
- Geographic location, power, fiber connectivity, and general construction & operations remain the primary selection criteria for establishing a datacenter.
- India is clearly looking at sustainability in Data Center construction and operation, including the use of renewable resources, a level playing field for all players, deemed regulatory approvals, and the digitization of RFPs.

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Challenges of Enterprise Customers

To **Increase the Performance and Strengthen the Security and Resilience** of their connectivity,

a) To ensure their flexibility by **Avoiding Vendor Lock-in**,
b) To **Reduce the Complexity** of their connections to partners, and
c) To increase their **Control of Compliance** within their ecosystem of partners

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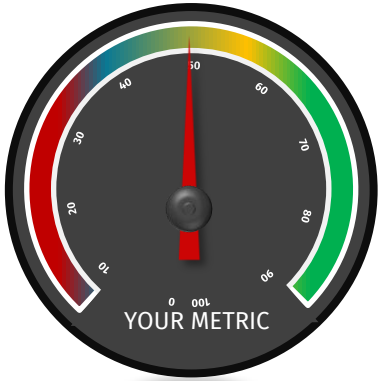
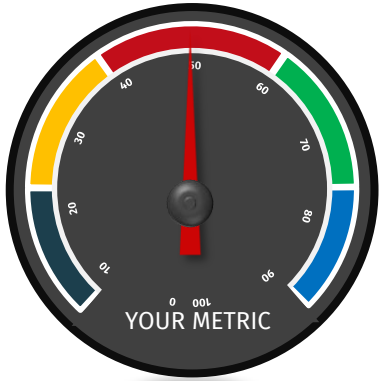
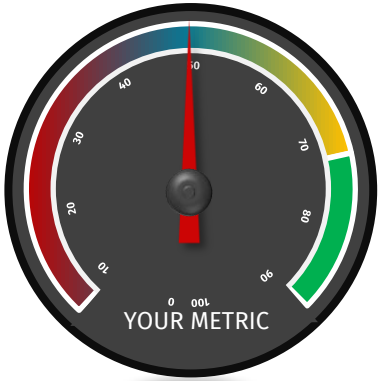
New Set of 3 must-have KPIs for Data Center



Greater Geographical Coverage of **Carrier and Data-Center Neutral Interconnection Infrastructure**



Local Access to a **greater Density and Diversity of Networks**



A variety of **Scalable and Customizable Interconnection Services** to support enterprise digital transformation.

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4 Steps to Increase Data Center Competitiveness

Step 1: To increase data center competitiveness: **Increase Network Density**

Step 2: To increase data center competitiveness: **Think Beyond The Cross-Connect**

Step 3: To increase data center competitiveness: **Offer enterprise Customers Flexibility**

Step 4: To increase Data Center Competitiveness: **Close the Skills Gap**

Digital Applications and Content closer to People and Business

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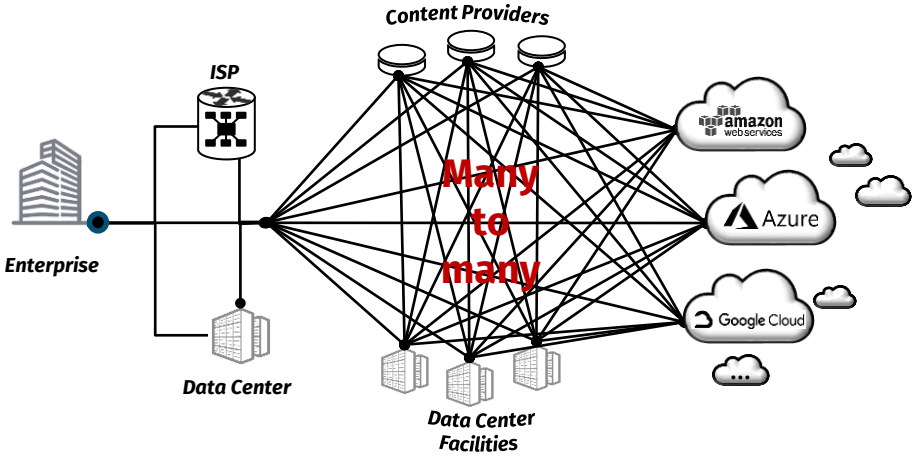
Solving Interconnection challenges and needs of Enterprises – Controllability of their Infrastructure and Data flows

Conventional enterprise approach*: many to many



Performance

- High latency

Security

- DDOS Attacks
- IP-Hijacking
- Instability of network

Controllability!?

Compliance

- Vendor lock-in
- Legal and Regulatory
- Market participants
- Company strategy

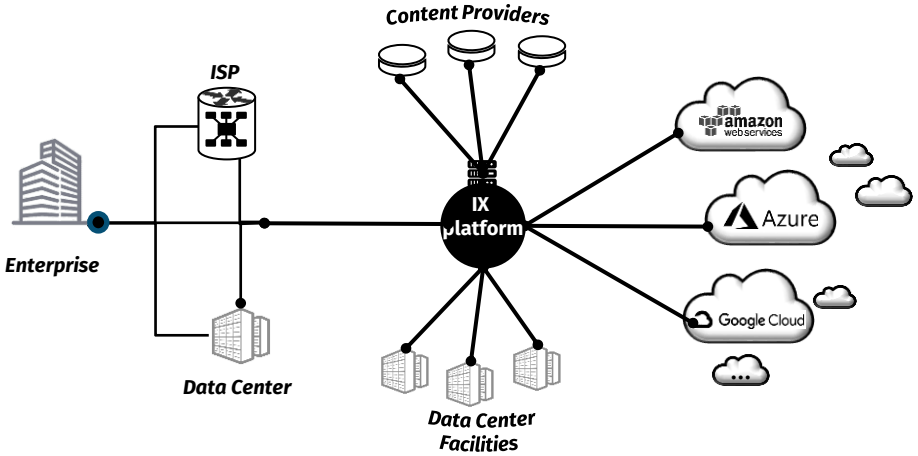
Complexity

- Complexity issues

(*): Corporations create an MPLS network, use an IP upstream provider, and have a (multi-) cloud strategy

Solving Interconnection challenges and needs of Enterprises – Controllability of their Infrastructure and Data flows

Multi-services interconnection fabric (DE-CIX approach)



Performance

- Optimized latency

Security

- Blackholing
- Filtering at the route server
- Reduction of routing instability

☑ **Controlled**

Compliance

- Vendor-independent
- Legal and Regulatory
- Market participants
- Company strategy

Complexity

- Simplified set-up

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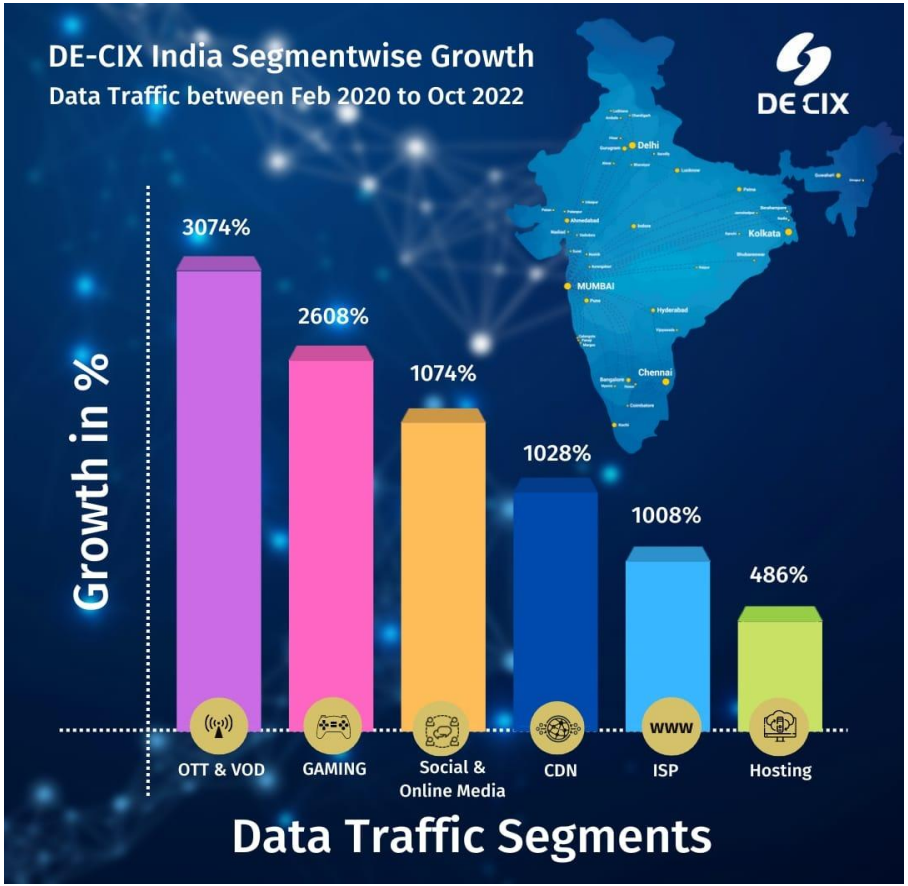
DE-CIX Interconnected Networks - Data Traffic



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DE-CIX catalyst, regardless of Data Center size, we become more significant in "Edge Data Center"

SIZE
from 1 rack upwards, incl. cooling, network technology, etc.
≈ 1 shipping container

POWER
±100 kW

TASK
Processing of IoT data close to the source

Micro Data Center

SIZE
±500 m²
≈ 1 cottage + garden or 1 basketball court

POWER
±1 MW

TASK
Company-owned data center for critical data, production data, etc.

Small Data Center

SIZE
±10,000 m²
≈ 1 Manhattan city block or 2 football fields

POWER
±10 MW

TASK
Provision of data center space to multiple tenants (possibly incl. Managed Services)

Medium Colocation Data Center

SIZE
±50,000 m²
≈ Windsor Castle or 12 football fields

POWER
±50 MW

TASK
Provision of data center space to multiple tenants; multiple companies & networks as added value for digital ecosystems

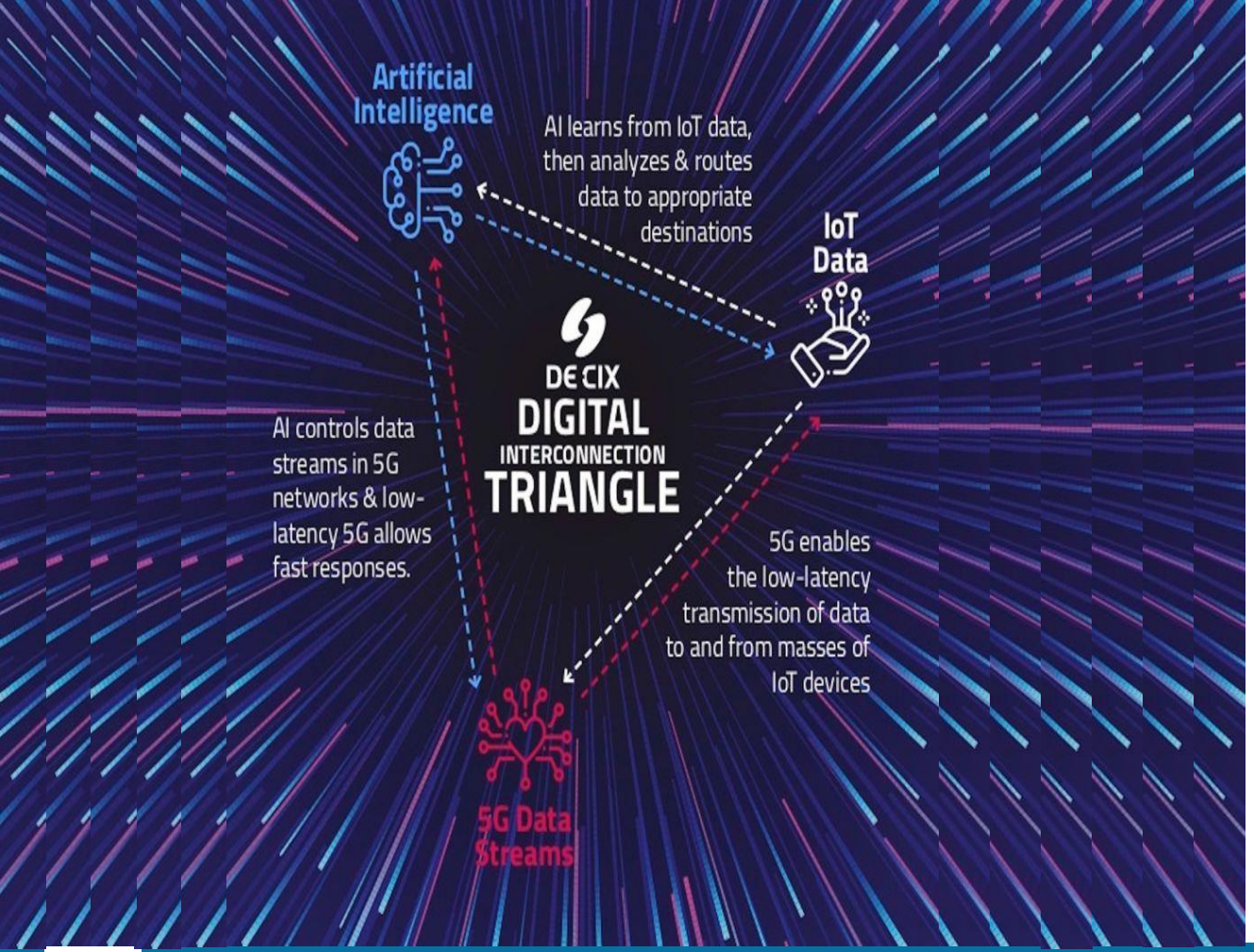
Large Colocation Data Center

SIZE
+100,000 m²
≈ the largest currently being built is approx. as big as Vatican City or 57 football fields

POWER
+100 MW

TASK
Colocation; computing capacity for the major global networks (e.g. cloud providers, CDNs, social media networks). Enough capacity to be highly scalable with demand

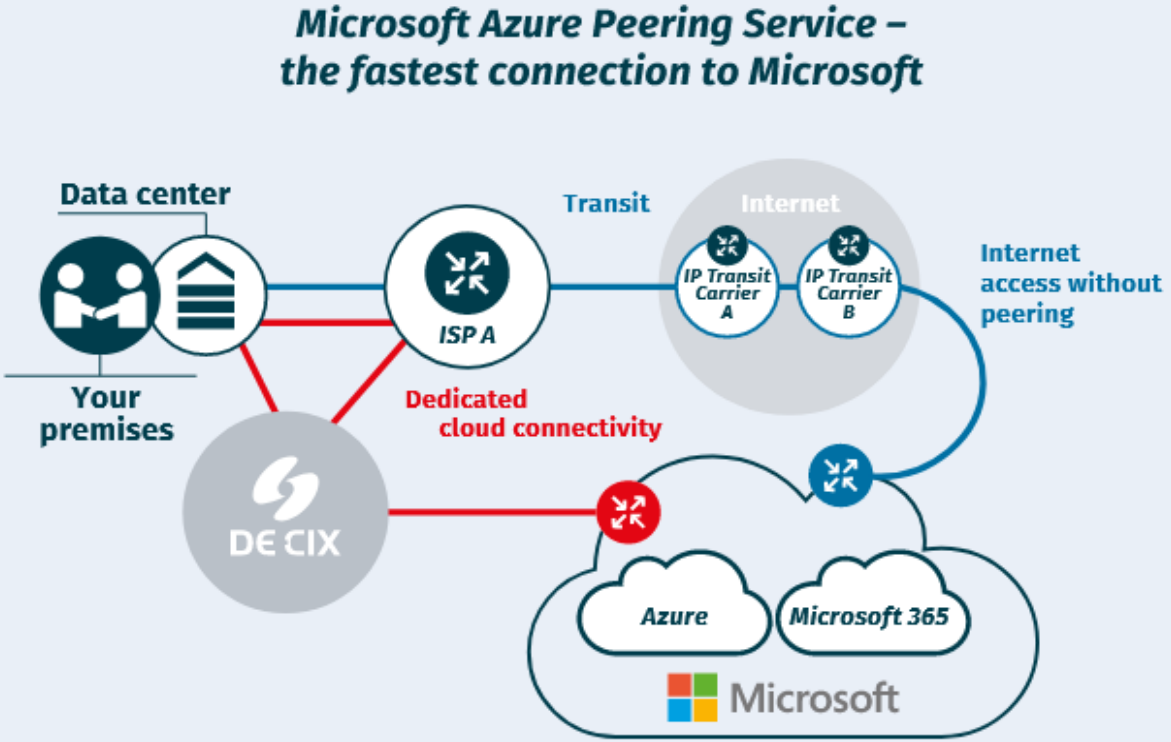
Hyperscaler Data Center



So, where is the data centre heading now? Well, probably in as many different directions as there are data centre concepts today.

“The Edge of the Data Center is a whole New Territory to be explored. Data Centers are being designed to Operate in Climatically Opportune, but unexpected places. DE-CIX will be there, together with our many Data Center and Connectivity Partners, providing the portal to the Next Generations of Interconnection.”

Launching Soon “MAPS”



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- Reduction in Cost
- Improved Latency
- Secured Interconnected Network
- Resilient Networks
- Greater Accessibility of Interconnected Data Centers

DE-CIX at a glance

DE-CIX Global:

40
Exchanges

3000+
Connected Networks

500+
Data Centers

DE-CIX India:
World's Fastest Growing Interconnection Platform

4
Exchanges

580+
Connected Networks

16
Data Centers

DE-CIX Mumbai:
Asia Pacific‘s Largest Internet Exchange Point amongst 153 Exchanges in 29 Countries.

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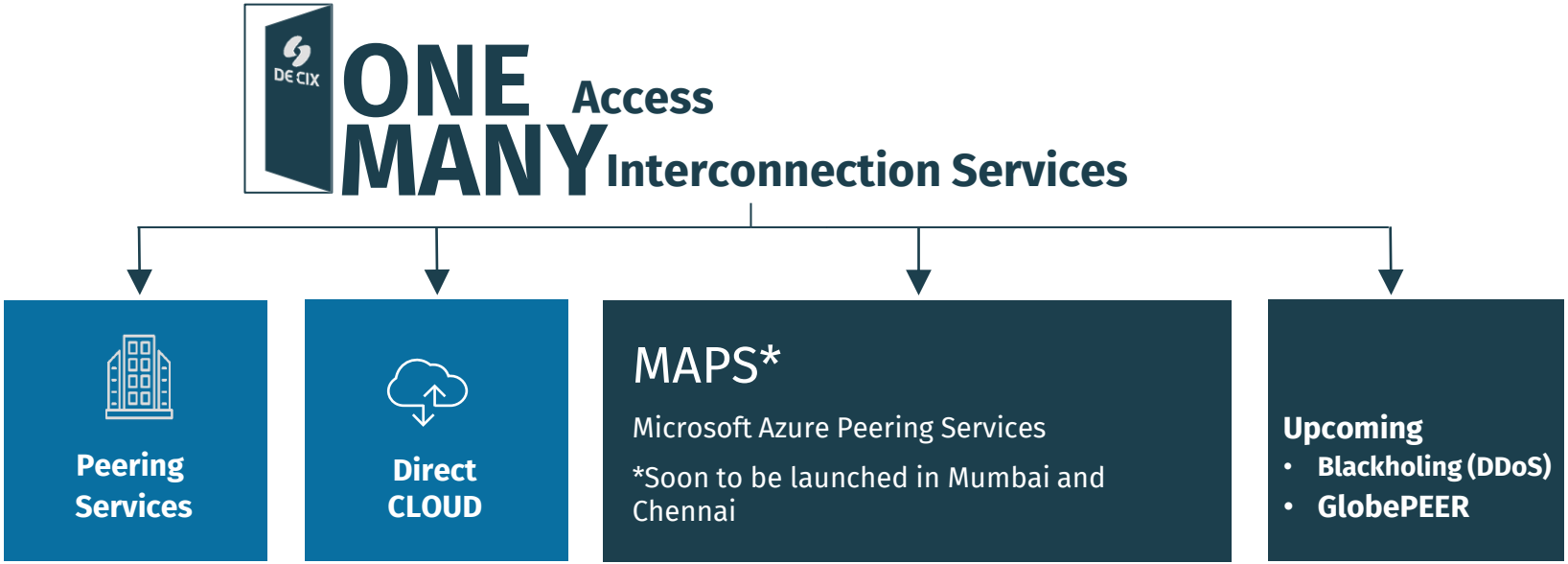
DE-CIX Service Offering



Our Presence

DECIX MUMBAI	DE-CIX DELHI	DE-CIX CHENNAI	DE-CIX KOLKATA
• Sify Rabale • Web Werks DC2 • Netmagic DC5 • Netmgaic DC6 • GPX Mumbai • ST Telemedia DC • Netmagic DC7 • GPX Mumbai 2 • Yotta NM1	• ST Telemedia Banglasahib • ST Telemedia G K1 • Sify Greenfort - Noida • Web Werks - Noida	• Bharti Airtel Santhome • ST Telemedia Chennai	• ST Telemedia Kolkata

Access to an additional 22 DC through a partnership with Lightstrom.

• IBM • NIXI • ESDS • STT LVSB • STT BKC • NTT Netmagic DC2	• Spectra • Netmagic • STT DC2 GK1 • STT 2 VSNL • CTRLS • Sify IDC • Nxtra	• ACT VEL • ACT IYL • ACT KLR • Netmagic • SIFY Tidel Park • VSNL Anna Salai • Nextra Siruseri • ACT-TNG • STT Ambattur

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Awards

Global Carrier Awards 2022:
DE-CIX is honored as the
Best Internet Exchange Operator

7th time

DE CIX

Solve your Interconnection Requirements For Tomorrow, Today.

DE-CIX India offers a comprehensive interconnection solution. As a comprehensive solution for Peering, Cloud Connectivity, and Private Network Interconnects with a Single Contract and Complete Flexibility.

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