

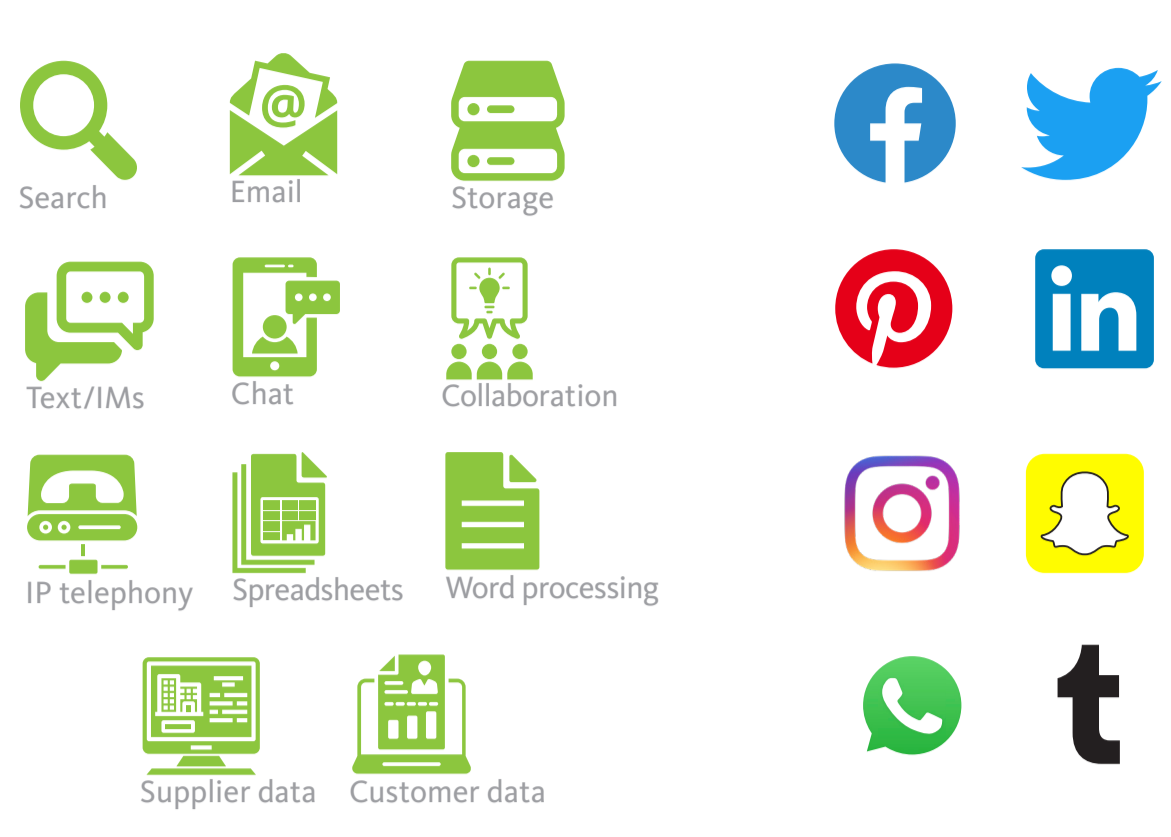
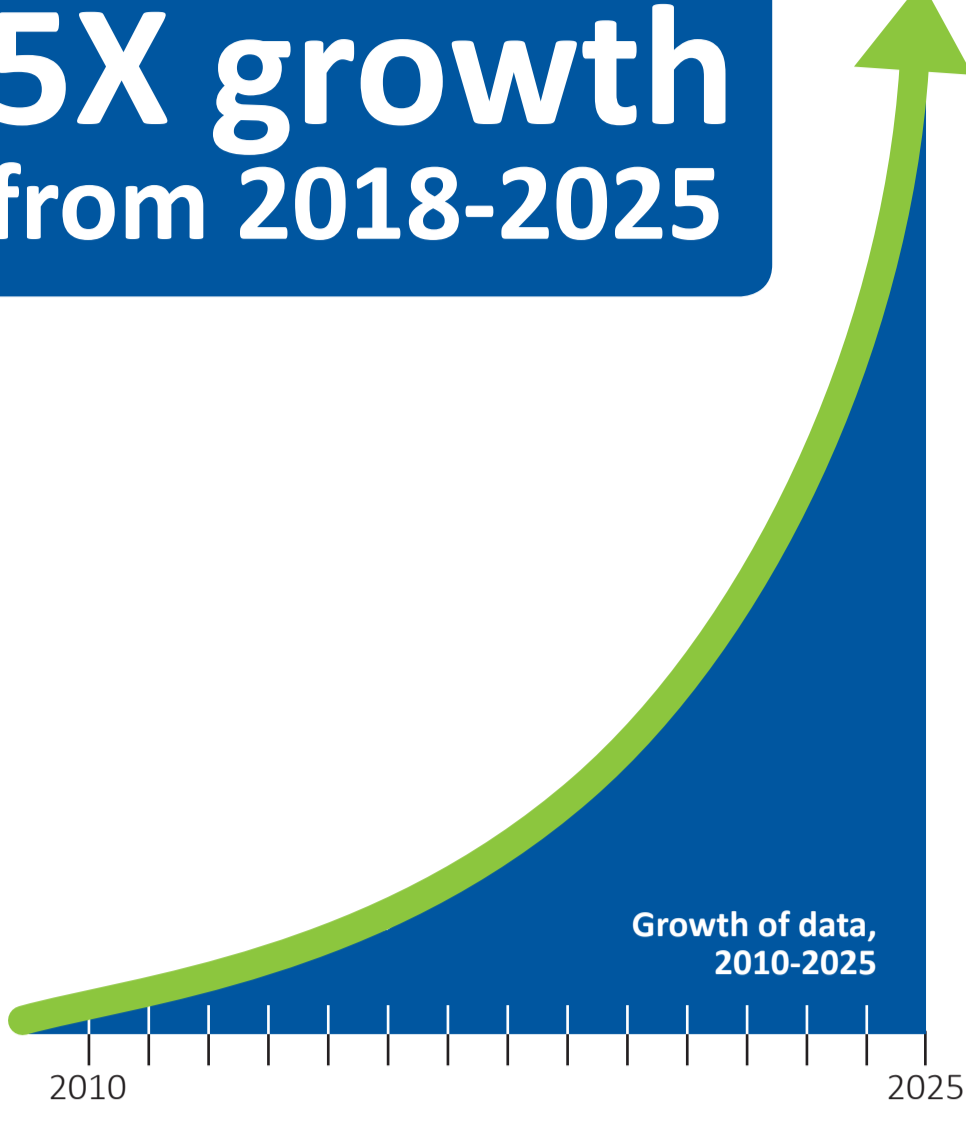
The Growth of Data, IoT, and Edge Computing

What it may mean for hardware vendors, cloud platform providers, communications infrastructure and data/voice services companies

Data is big
and growing fast...

...from diverse and active sources

5X growth
from 2018-2025



~2/3rds of data
expected from enterprise

More than 50% of data

will come from IoT devices at home, in transport, at work, and in cities

WHAT IOT?

SELF + HOME

WORK + CITIES



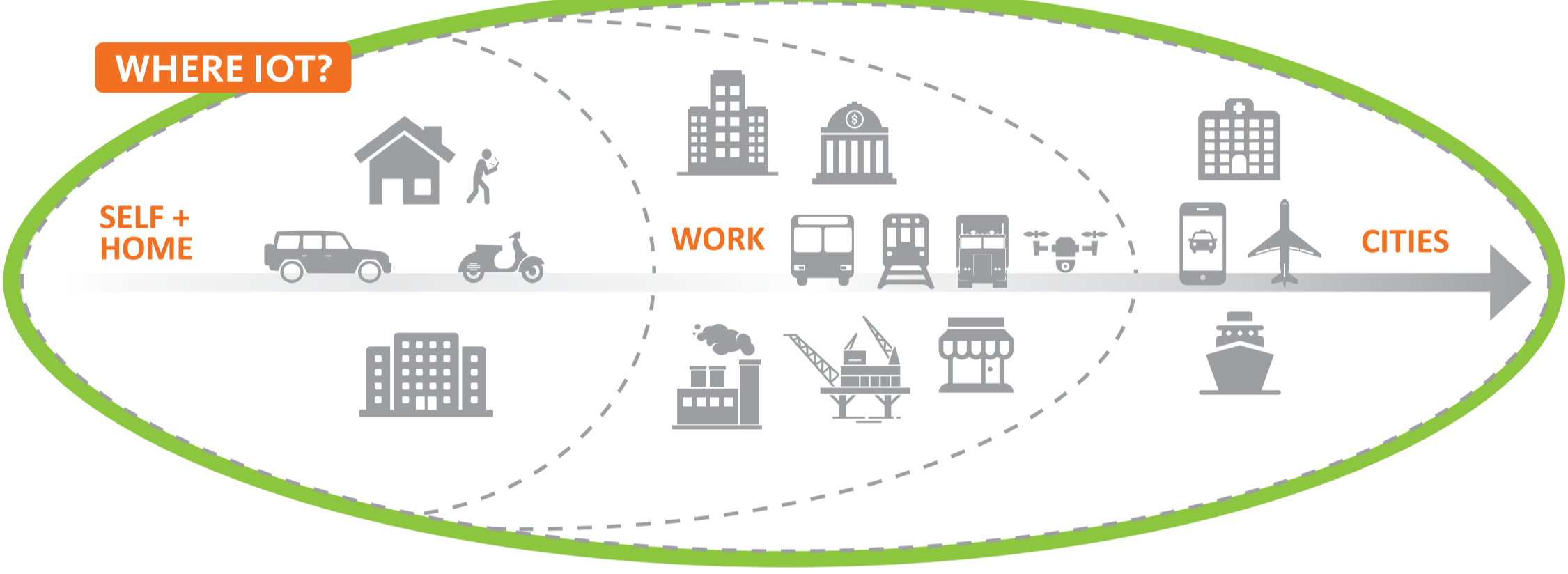
From ~20B+ to ~60B+
devices by 2025

WHERE IOT?

SELF + HOME

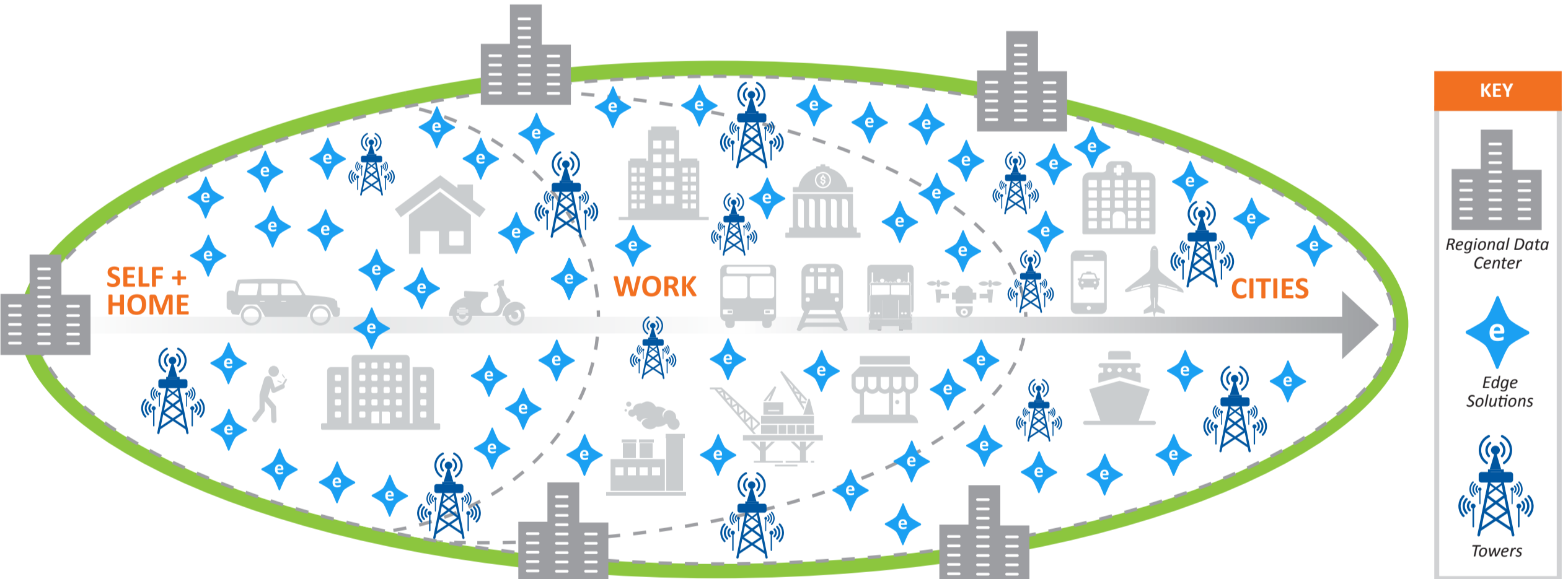
WORK

CITIES



Regional data centers

were not designed for the coming data volume,
creating demand for edge solutions closer to end points...



KEY

- Regional Data Center
- Edge Solutions
- Towers

...spurring tower, telco and cloud platform providers
to invest in new communications and data infrastructure
to offer **edge infrastructure and services**

Hardware, software and services companies

are accelerating edge & IoT solutions

	PROCESSORS	DEVICES & SYSTEMS	COMMUNICATIONS INFRASTRUCTURE & SERVICES	SOFTWARE & CLOUD-BASED IOT / EDGE-TAILORED SOLUTIONS
EXAMPLES	<ul style="list-style-type: none"> Energy efficient processors IoT/edge application specific solutions (ASICs) Environmentally ruggedized 	<ul style="list-style-type: none"> Ruggedized devices Edge-specific servers, gateways, etc 	<ul style="list-style-type: none"> Edge / IoT comms services Partner-enabled IoT solutions 	<ul style="list-style-type: none"> Cloud-based IoT services Cloud-based edge-services
	<ul style="list-style-type: none"> intel Quark™, Atom™ Processors Intel IoT Platform™ 	<ul style="list-style-type: none"> Hewlett Packard Enterprise Edgeline™ converged edge systems Aruba™ edge gateways 	<ul style="list-style-type: none"> verizon Connect™ telematics Intelligent Traffic Management 	<ul style="list-style-type: none"> amazon.com aws AWS IoT Greengrass Amazon FreeRTOS
	<ul style="list-style-type: none"> QUALCOMM Vision Intelligence Platform™ Smart Display Platform™ 	<ul style="list-style-type: none"> CISCO Edge Solutions Kinetic™ IoT platform 	<ul style="list-style-type: none"> T-Mobile Asset tracking solutions Narrowband-IoT services 	<ul style="list-style-type: none"> Google Cloud Cloud IoT Core Cloud IoT Edge
	<ul style="list-style-type: none"> NVIDIA AI IoT Jetson™ dev kit 	<ul style="list-style-type: none"> DELL Edge Gateways for IoT Embedded Box PC 	<ul style="list-style-type: none"> CROWN CASTLE Vapor.io (edge investment) 	<ul style="list-style-type: none"> Microsoft Azure Azure IoT Azure IoT Edge

Who will build, manage and monetize the edge?

Kaiser Associates works with leading providers of software, hardware, infrastructure, and cloud platform and application services to grow revenue and share from the network core to the edge.

	CLOUD PLATFORM PROVIDERS?	TOWER COMPANIES?	MANAGED NETWORK SERVICES PROVIDERS?
CAPABILITIES			
Data & Voice Services	✓		✓
Infrastructure build & manage	✓	✓	✓
Customer base: Enterprise	✓	✓	✓
Customer base: SMBs	✓		✓

- Key topics that global stakeholders should consider when developing edge-related strategies include:
- WHERE TO PLAY:**
- Market opportunity assessment
 - Needs-gap analysis
 - Solution/feature customer review
- HOW TO WIN:**
- Customer decision process / journey
 - Competitive intelligence and benchmarking
 - Business models and monetization strategies
 - Go to market strategies
 - Channel and partner analyses
 - Operationalizing IoT/edge resources and systems