

PAVING NEW BONDING POSSIBILITIES IN IIOT



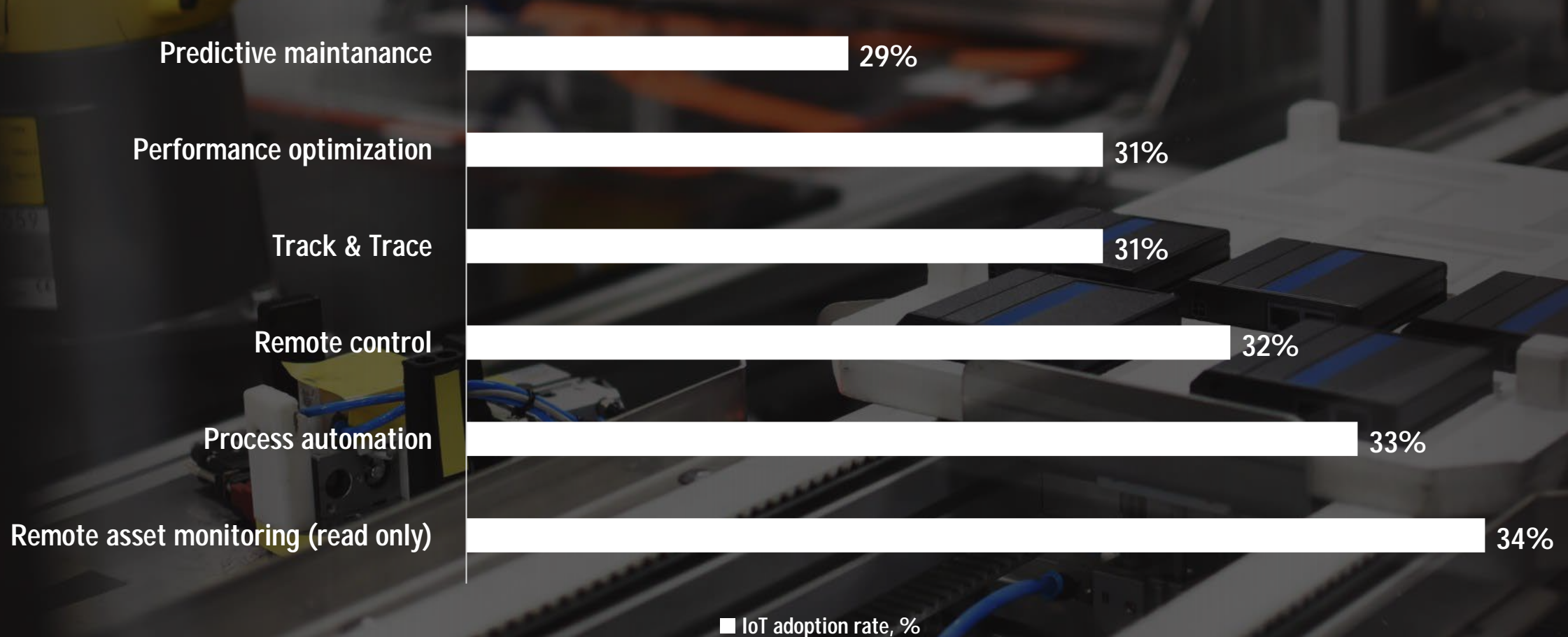
IIOT: THE RISE

14.4 billion active connections (2022) &
27 billion connected IoT devices in 2025

Users are moving away from legacy
2G/3G toward 4G/5G IoT

Downtime reduction is one of the top
drivers of IIoT growth

IIOT: ADOPTION RATE (2021)



Bondix S.A.NE in a nutshell

Bondix S.A.NE

- Stands for **S**imple **A**ggregation of **N**etworks
- Adds bonding functionality to existing hardware

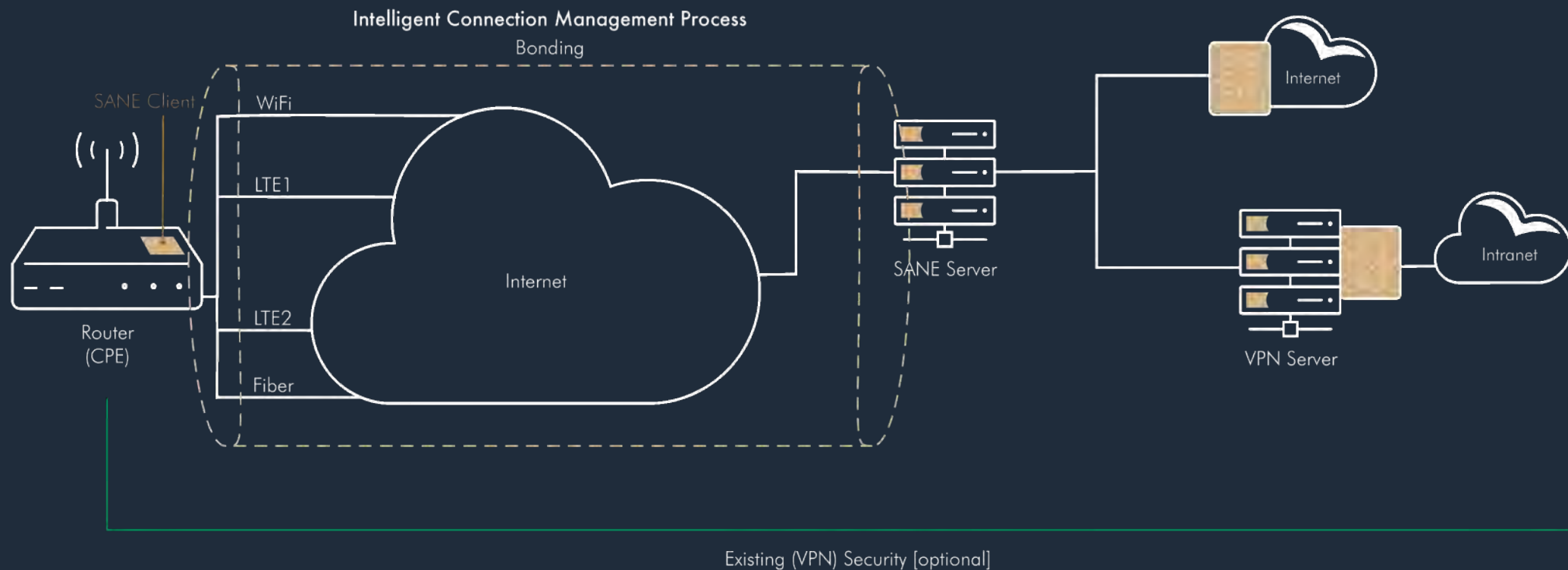
Difference to other SD-WAN or hardware solutions

- Versatile
Can be installed on many supported Teltonika routers
- Real bonding instead of load balancing
Increases reliability affordably
- Allows the use of existing VPN infrastructures



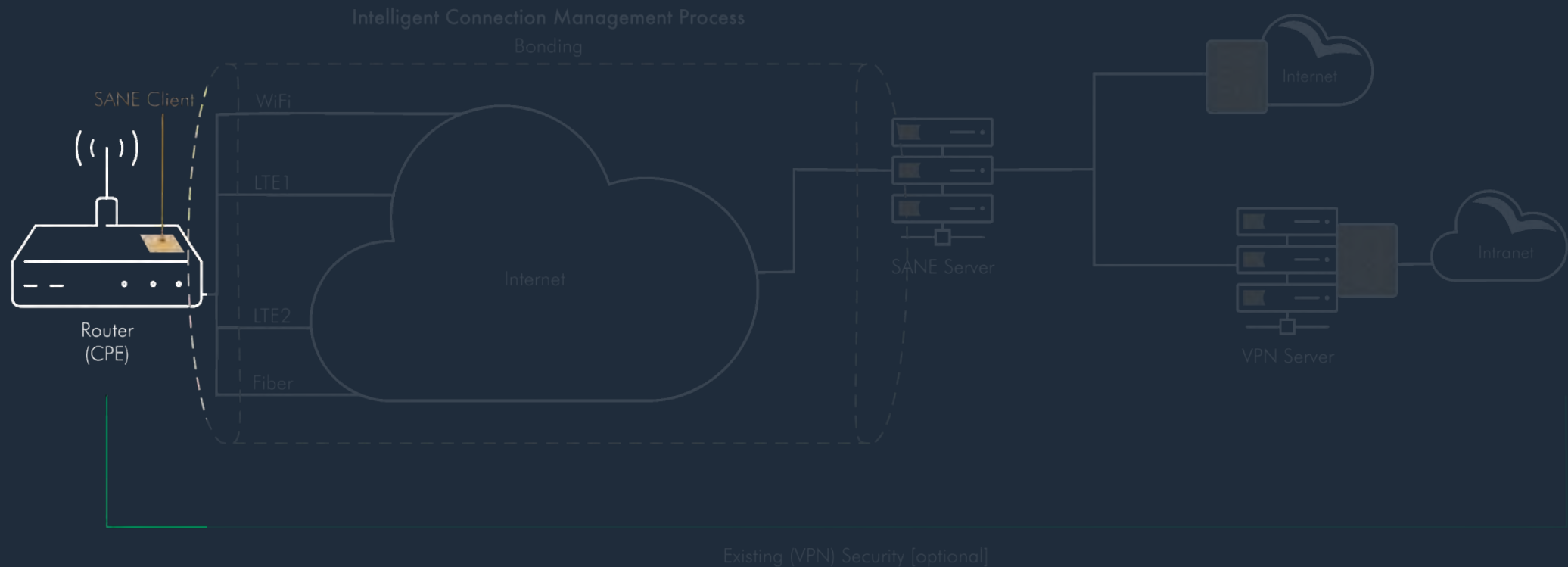
Basics: Bonding M.O.

- Needs 3 components: Client – Tunnel – Server



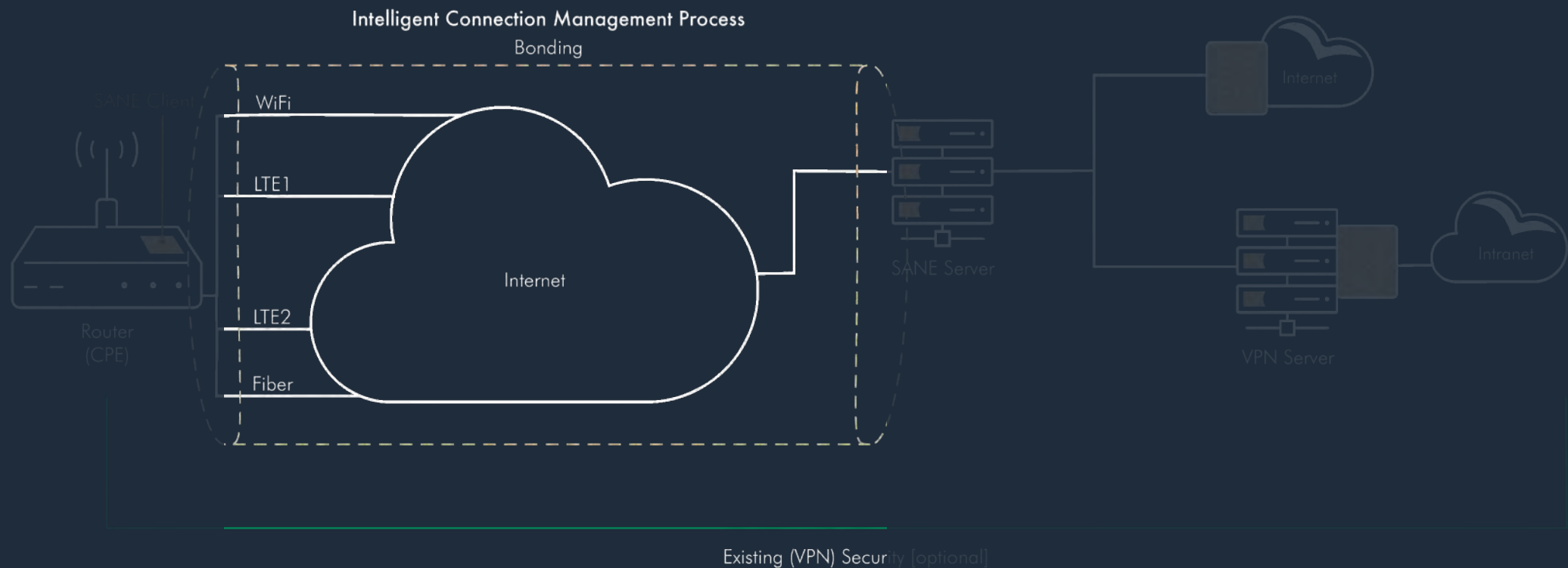
Basics: Bonding M.O. – Client

- Sets up tunnel with server
- Breaks down data traffic into data packages
- Sends data packages through tunnel



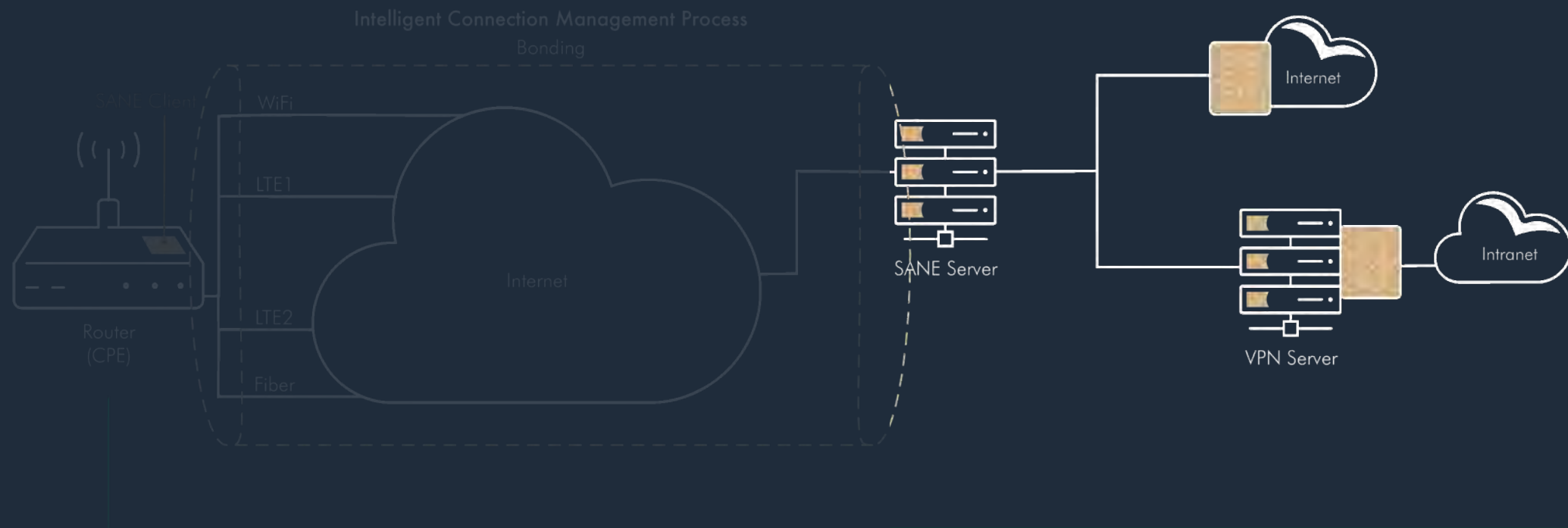
Basics: Bonding M.O. – Tunnel

- Logic connection between different WAN links
- Transports data packages to and from Client and Server



Basics: Bonding M.O. – Server

- End point for tunnel
- Reassembles data packages
- Forwards them to the Inter- or intranet



Existing (VPN) Security [optional]

Benefits: Why opt for bonding in IIoT?



UPTIME / SLA
Increase of Reliability

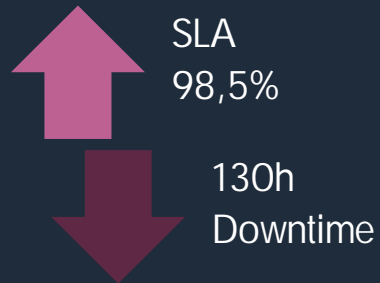


LATENCY
Decrease / Levelling
For More Stability



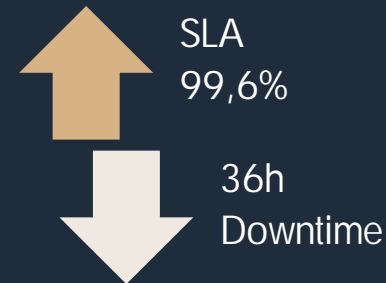
**BANDWIDTH
AGGREGATION**
Enabling New Uses

Benefits: Carrier SLA – A Promise of Availability



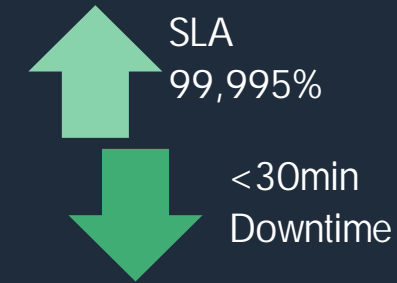
Single Fixed Line

- Router without bonding functionality
- Outage usually doesn't occur in bulk and/or on weekends



Bondix S.A.NE

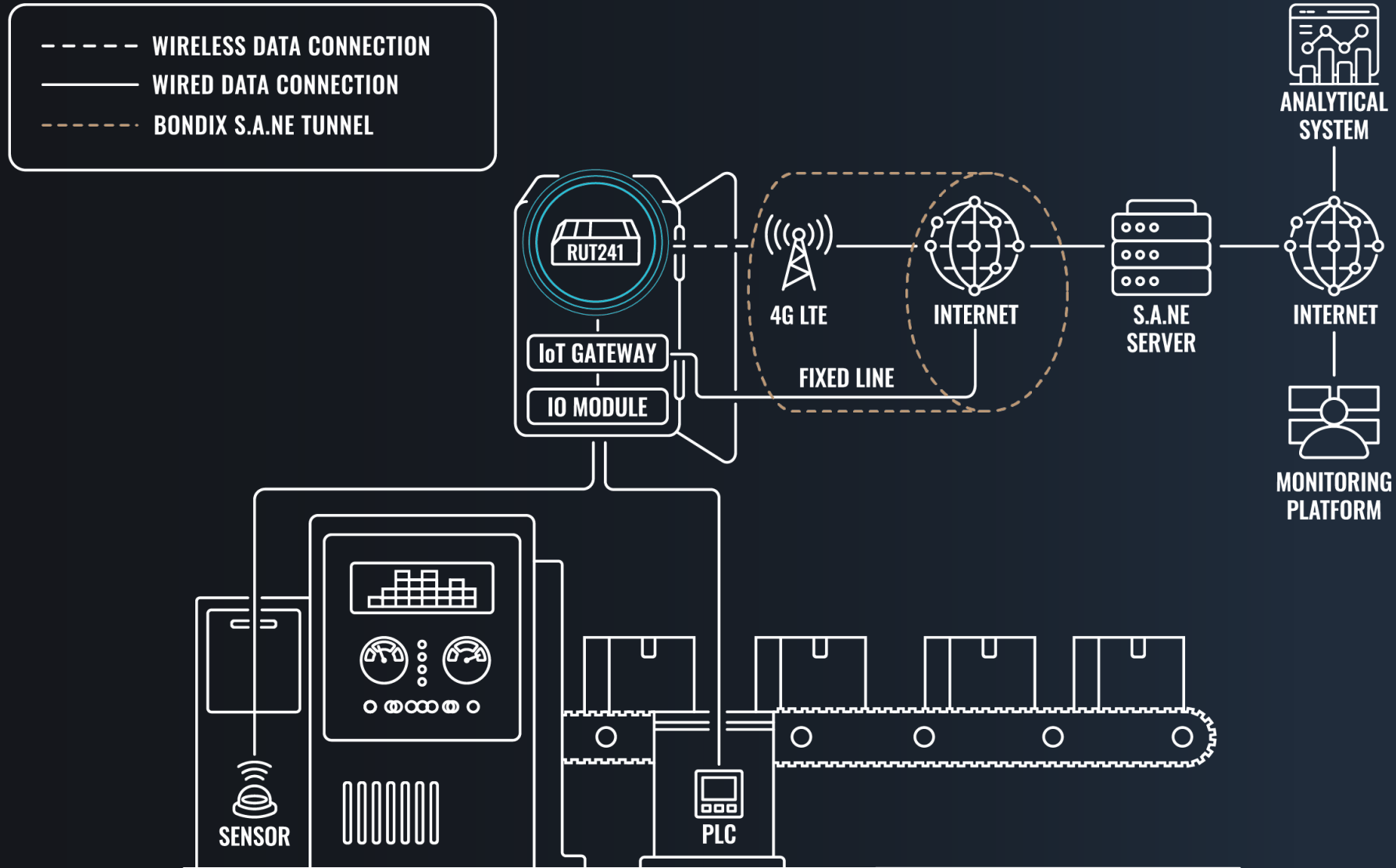
- 1x Single fixed line und 1x mobile WAN link (LTE) + 2 servers
- Risk distribution to several links



2x Bondix S.A.NE

- 2x S.A.NE-capable routers conjoined + 2 servers
- Risk distribution by complete device redundancy

USE CASE: PREDICTIVE MAINTENANCE

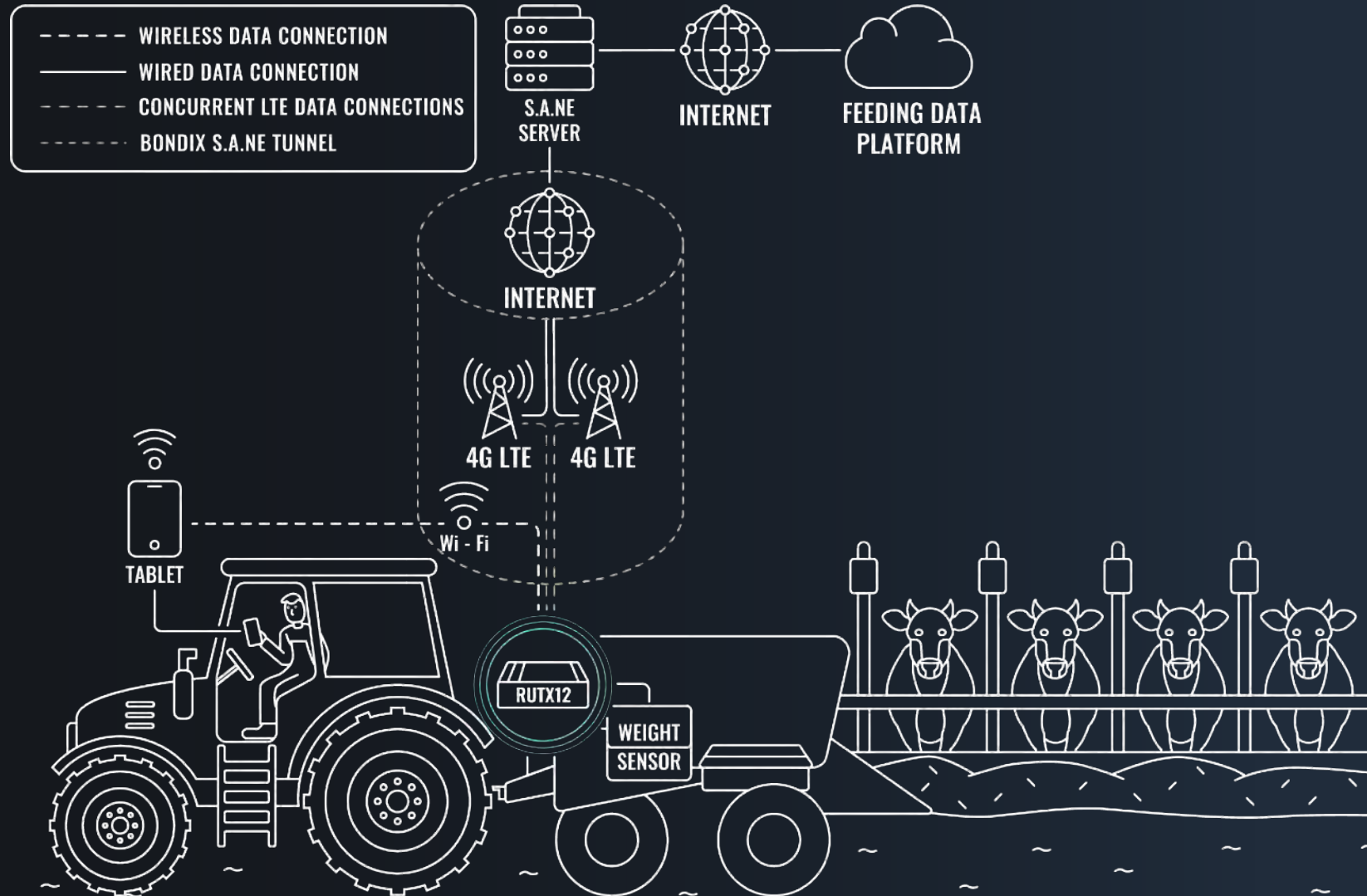


Benefits: Bandwidth Aggregation



- New uses at the ends of serviceable areas:
 - Off-shore
 - Mountainous regions
 - Deserts

USE CASE: SMART AGRICULTURE

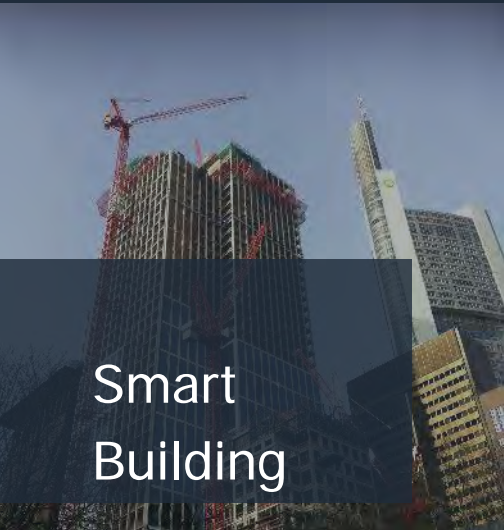


Demo

```
... mod = modifier ob
... rror object to error
... rror_mod.error_object =
...
operation = "MOD100_X"
mirror_mod.use_x = True
mirror_mod.use_y = False
mirror_mod.use_z = False
operation = "MIR100_Y"
mirror_mod.use_x = False
mirror_mod.use_y = True
mirror_mod.use_z = False
operation = "MIR100_Z"
mirror_mod.use_x = False
mirror_mod.use_y = False
mirror_mod.use_z = True
...
@selection at the end add
obj.select = 1
obj.select = 1
context.scene.objects.active
("Selected" + str(modifier
mirror_ob.select = 0
= bpy.context.selected_ob
data.objects[0].name).select
print("please select exactly
...
OPERATOR CLASSES
...
types.Operator):
@X mirror to the selected
object_error_mirror.py
error X"
...
execute):
wt.active_object is not None
```



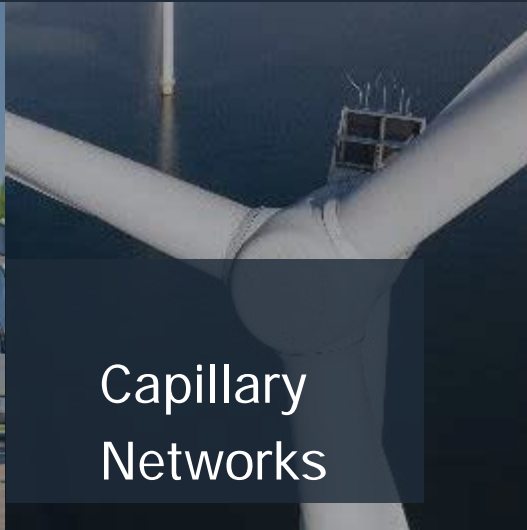
Many More Use Cases



Smart
Building



Tracking,
Fleet
Management



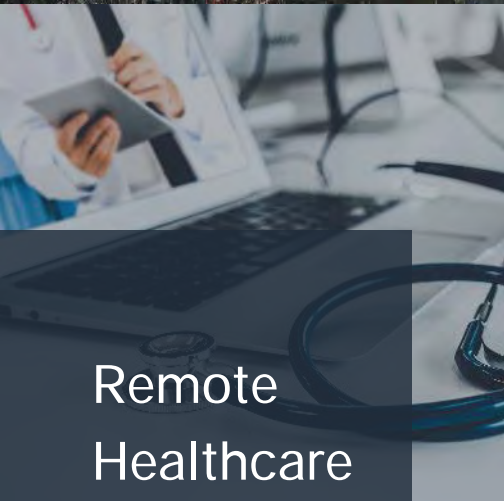
Capillary
Networks



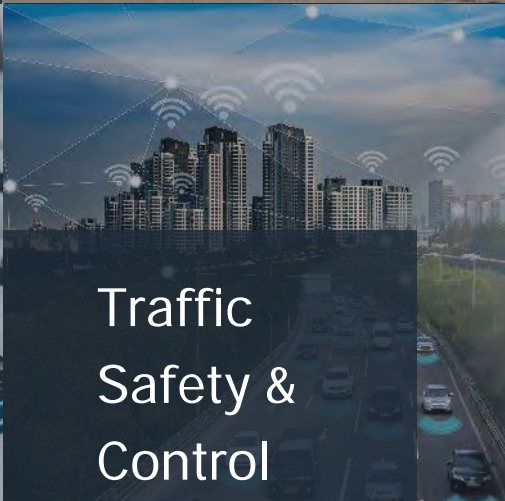
Smart
Metering



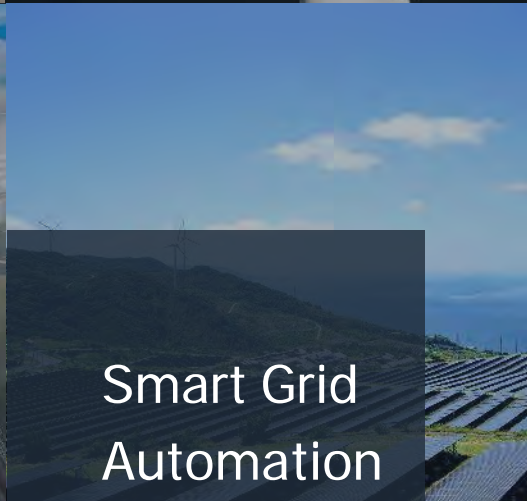
Logistics,
Storage



Remote
Healthcare



Traffic
Safety &
Control



Smart Grid
Automation



Industrial
Application
& Control



Remote
Manufacturing

A specialist in developing WAN software solutions specifically tailored to the needs of OEMs, hardware distributors, network and Internet providers and their end users, Bondix Intelligence enables its customers to get more out of their existing infrastructure, for longer.

Enjoy high speeds, high bandwidth, low latency, efficiency and reliability – simply by adding the right kind of intelligence. Bondix Intelligence works seamlessly with its customers and partners to arrive at the best solution every time; a solution that is both cost-effective and future-proof.


Bondix Intelligence. Because smarter is better.


About Bondix

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