

Napatech A/S

Company Presentation
September 20, 2017

Henrik Brill Jensen, CEO



Napatech in short

- Napatech provides reconfigurable SmartNIC solutions based on hardware and software that help IT organizations reimagine their business by harnessing the cost, performance and innovation benefits of cloud-scale architectures
- Napatech pioneered the use of reconfigurable FPGA-based acceleration hardware and software for networking and security applications. Today, FPGAs are recognized as the preferred technology for SmartNIC solutions
- The shift towards cloud networking, 5G mobile and IOT has created a pervasive need for SmartNIC solutions across a wide range of new users, in high-growth applications and services; serving as the catalyst for Napatech's next phase of growth

What is a SmartNIC?

- A SmartNIC is a product built around a very-flexible, high-speed, computing chip like a Field-Programmable Gate Array (FPGA)
- Unlike conventional technology, a SmartNIC is software reconfigurable – delivering hardware performance at the speed of software innovation



Cyber@adAPT

DELL EMC



Major trends in networking and communications



Cloud
Computing



5G
Mobile



Internet of
Things

By 2020

4

BILLION
Connected People

25

MILLION
Applications

25

BILLION
Embedded Systems

50

BILLION
Devices and Sensors

50

TRILLION
Gbps of Data

Source: IDC

Users primary concerns – connectivity and security
Pose fundamental challenge for any service provider

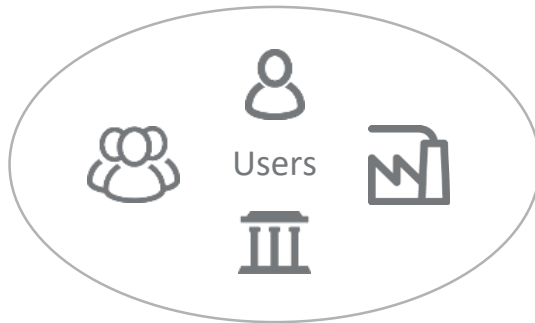


Many applications available to service providers to ensure connectivity and security

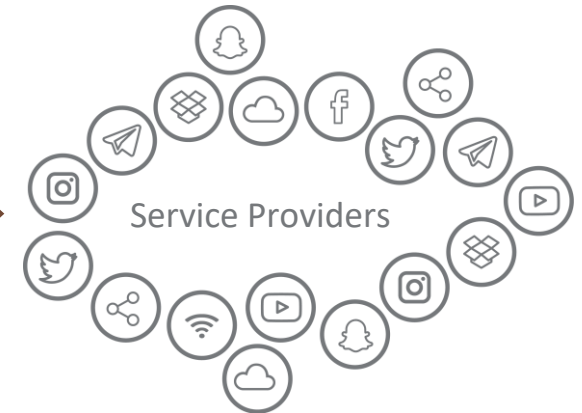


Stay Connected

Ensured by multitude of Network Management Applications



All these Applications need access to the right data at the right time



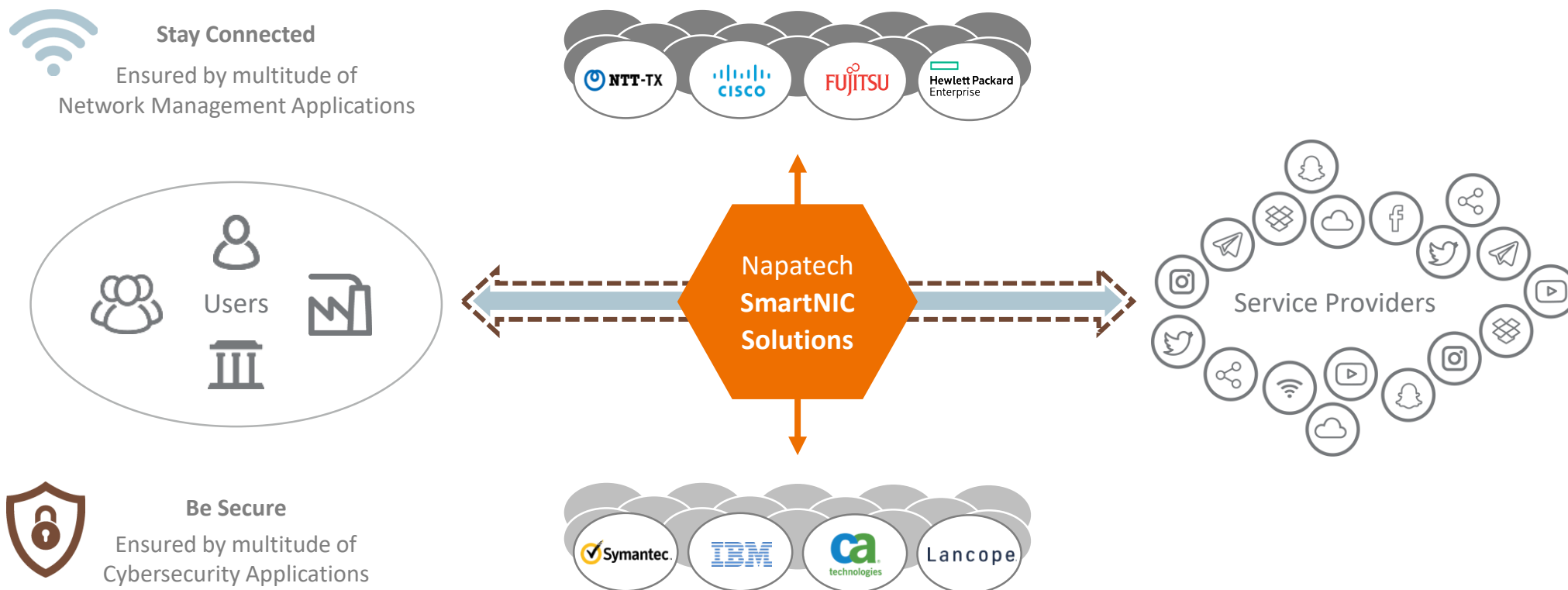
Be Secure

Ensured by multitude of Cybersecurity Applications



Napatech SmartNIC Solutions

Deliver all the data all the time



Unlike conventional technology Napatech SmartNIC Solutions guarantee delivery of the right data to the right place at the right time

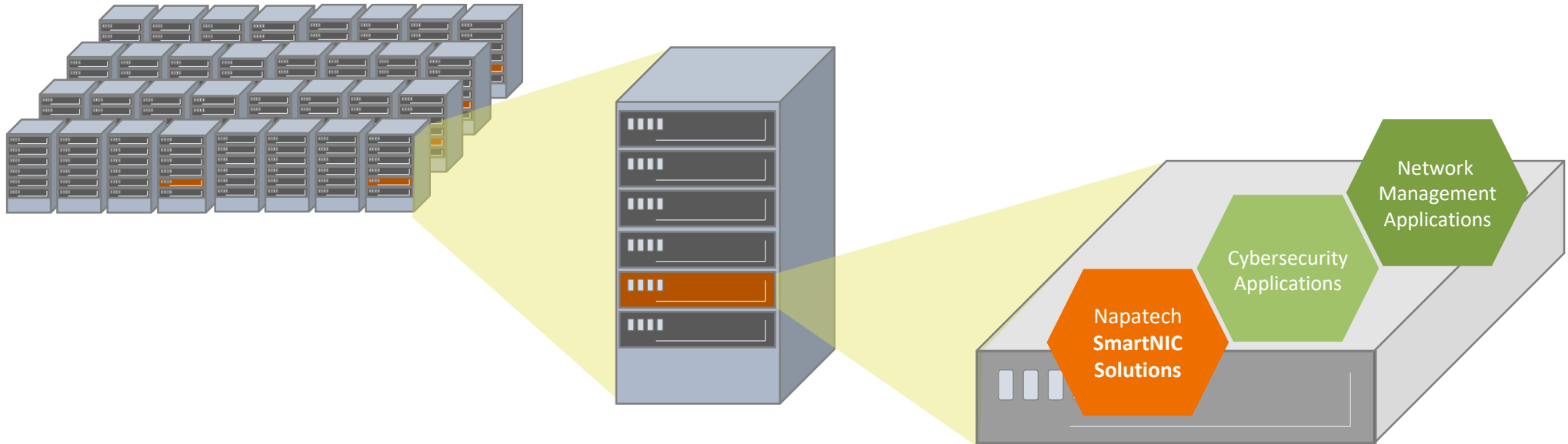
Napatech SmartNIC Solutions

Ensure service connectivity and security

Typical datacenter
with thousands of servers
supporting user services

Some servers dedicated to
network management and
cybersecurity applications

Napatech SmartNIC Solutions ensure
reliable delivery of all the data all the
time to these applications



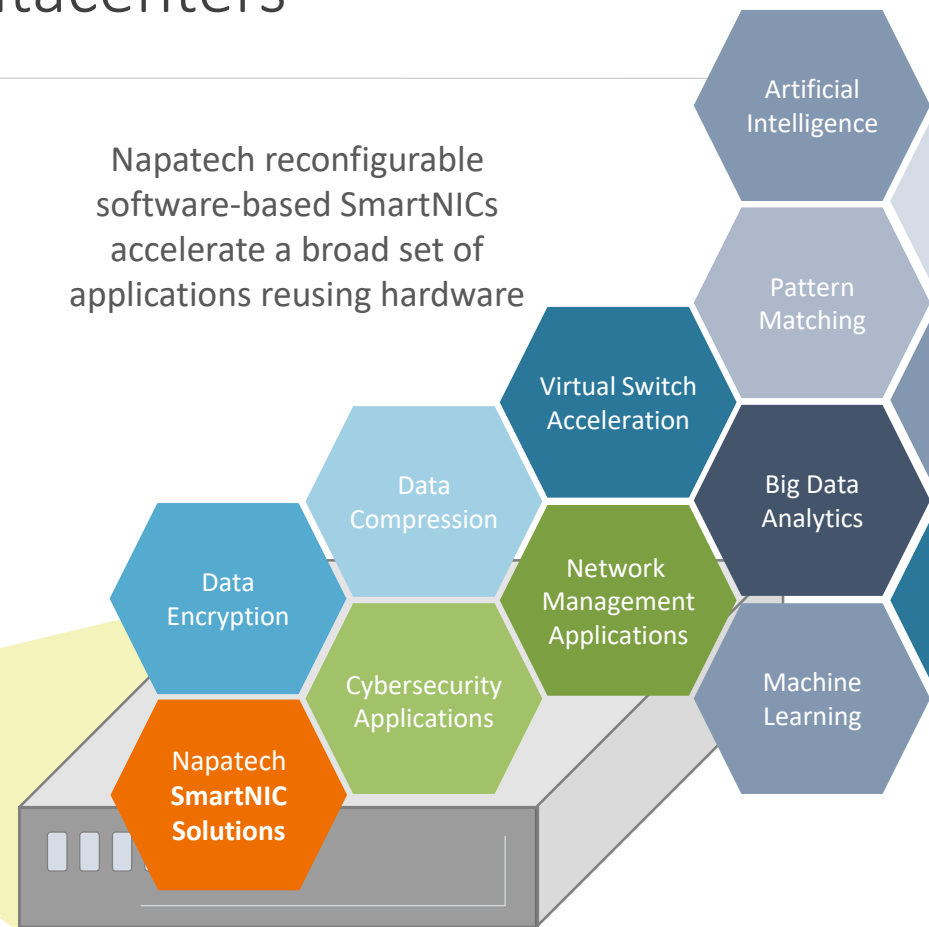
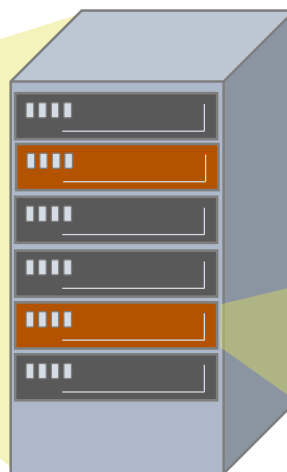
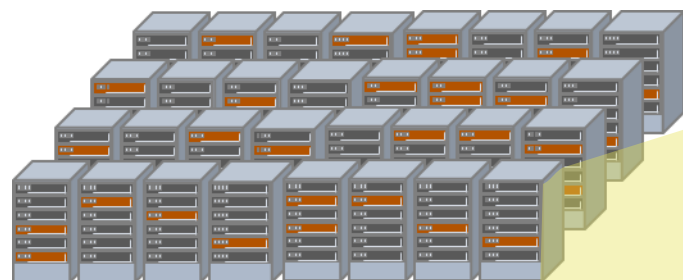
Napatech growth strategy

Supporting software transformation of datacenters

Growth in cloud services delivered to mobile devices requires faster, more agile service deployment in software-automated datacenters

SmartNICs are required in more servers to keep up with the speed at which software services need to be delivered

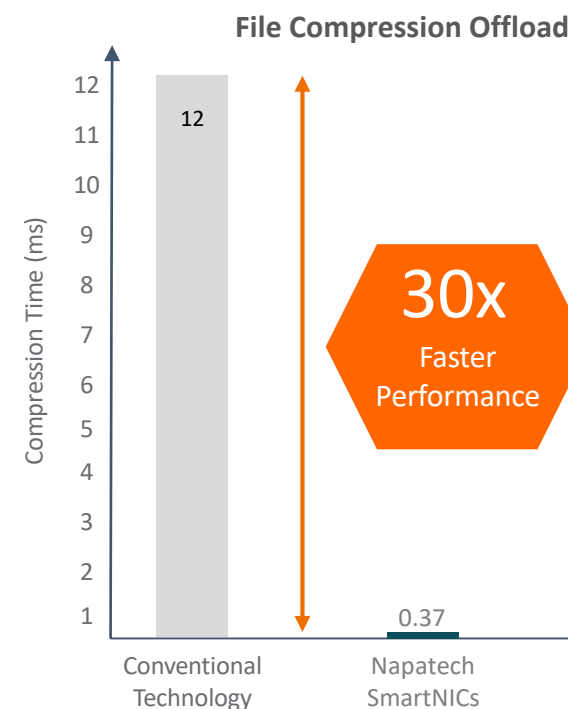
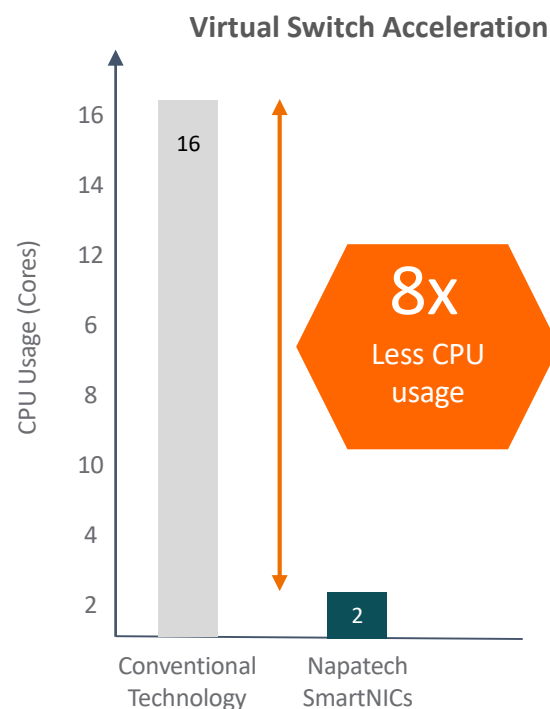
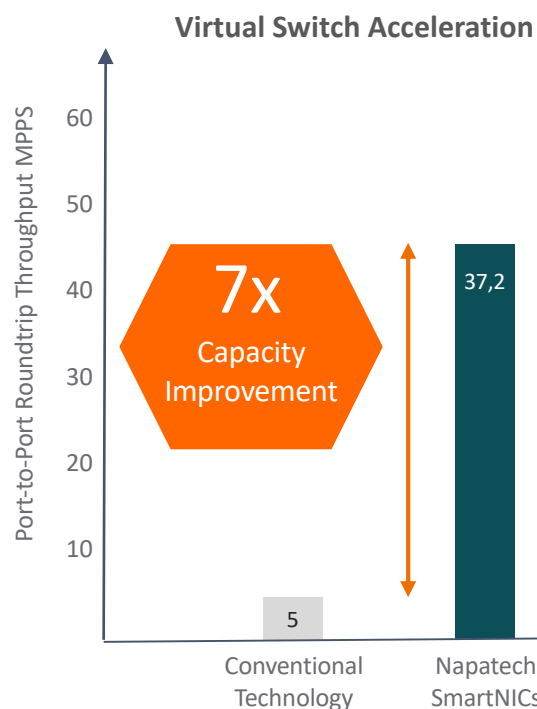
Napatech reconfigurable software-based SmartNICs accelerate a broad set of applications reusing hardware



Napatech aims to be the leading provider of SmartNIC Solutions for every IT organization, who require datacenter hardware to perform at the speed of software delivery

Napatech SmartNIC Solutions

When conventional technology fails to perform



Napatech SmartNIC Solutions return expensive and valuable processing resources to the applications and services for which they were originally intended

Industry backing FPGA's as the preferred SmartNIC technology

Microsoft improves Azure latency by deploying custom NICs



WRITTEN BY
Clare Hopping

News

24 Aug, 2015



The hardware will help offload SDN demand for extra flexibility

Microsoft has started deploying custom network interface controller (NIC) hardware in its Azure datacentres to help offload the burden of software-defined networking (SDN).

The tech giant's SmartNIC hardware uses the same Field Programmable Gate Array (FPGA) technology developed for Bing, which it claims allows for extra flexibility, reprogramming it to offload the server CPU's virtual switch, used to route traffic between virtual machines.

This offers up better latency and frees up processing power for other operations where it's needed more urgently, according to Redmond.

Microsoft networking development engineer Albert Greenberg explained that a key part of the SmartNIC's inner workings are that it's adaptable to changes that may happen in the future, making it an even more attractive option for things like SDN, where the future is unpredictable.

"No one knows what SDN capabilities will be needed a year from now. Our FPGA-based SmartNIC allows us to reprogram the hardware to meet new needs, as they appear — reprogramming, not redeploying hardware," he said in a [blog post](#).

Intel Begins Shipping Xeon Chips With FPGA Accelerators

By: Jeff Burt | April 13, 2016

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Combining the Intel server chips with Altera's FPGAs will improve the performance-per-watt of systems running the two by 70 percent, officials say.



DEC 13, 2016 @ 01:30 PM 17,318

Amazon's Xilinx FPGA Cloud: Why This May Be A Significant Milestone



Moor Insights and Strategy, CONTRIBUTOR
Straight talk from Moor Insights & Strategy tech industry analysts [FULL BIO](#) ✓
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POST WRITTEN BY

Karl Freund

Karl Freund is a Moor Insights & Strategy analyst for deep learning & HPC.

Intel has begun shipping a development module that features the company's latest Xeon E5 server processors and programmable chips that will help customers drive performance while holding down power consumption.

The multichip platform is pairing the 14-nanometer Xeon E5-2600 v4 "Broadwell" processors—launched late in March—with the Arria10 field-programmable gate arrays (FPGAs) from Altera. Diane Bryant, senior vice president and general manager of Intel's Data Center Group, on April 13 announced during a keynote address at the company's Intel Developer Forum (IDF) in China that the modules were shipping.

**Napatech
pioneered the use
of FPGA-based
SmartNICs for
networking**



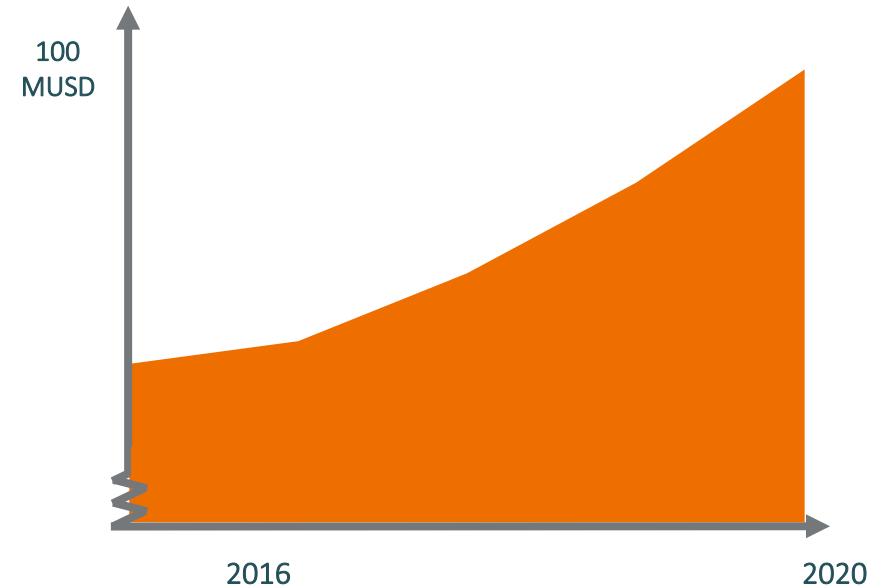
**Configurable cloud architecture
based on FPGAs**



**Intel acquires Altera FPGA
for record \$16.7B**

Accelerated growth path towards 2020

- Robust portfolio of current customers and SmartNIC Solutions ensuring service connectivity and security, provide **strong business foundation** and further growth opportunities
- New emerging **SmartNIC opportunities for accelerated growth** driven by cloud networking, 5G mobile and IOT; serves as the catalyst for Napatech's next phase of growth
- Catalogue of ongoing design win deployments with **market leading customers** based on our SmartNIC solutions and strategic relationships is a unique stepping stone supporting our strategic ambitions



Napatech is in pole-position to continue to deliver state-of-the-art reconfigurable SmartNIC solutions based on hardware and software to customers, in high-growth applications and services

Enhancing our organization to match our strategic ambitions

In the North American Market (NAM), in particular, we see a pervasive need for SmartNIC solutions across a wide range of new users, in high-growth applications and services

We therefore continue to strengthen the organization to match our ambitions in the North American market – and have initiated this journey by:

Additions to the Management Team:

- Jarrod Siket, Chief Marketing Officer, Pittsburgh, PA
- Ken Way, Chief Sales Officer, Bay Area, CA

Additions to the Board of Directors:

- Howard Bubb, OEM customer and market expertise in NAM
- Henry Wasik, Software transformation and NAM data center expertise
- Lars Boilesen, Business development within NAM and other key markets

Increased North America Market focus as:

- NAM is >75% of current sales
- 9 out of 10 top customers are all based in NAM
- Growth expectations towards 2020 include further progress with existing and new NAM customers

Q&A Session

napatech

OSLO
OSLO BERG



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