Investor Presentation

Q3 2019
NASDAQ: MOSY

Safe Harbor Statement

This presentation may contain forward-looking statements about MoSys, Inc. (the Company) for purposes of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange act of 1934, as amended, including, without limitation, benefits and performance expected from use of its embedded memory and interface technologies and integrated circuit (IC) products, improving operational efficiencies, the timing of product development and shipments of the Company's IC products, anticipated benefits and performance expected from the Company's IC products, growth in the size of the market addressed by the Company's business, future markets and future business prospects. Forward-looking statements are based on certain assumptions and expectations of future events that are subject to risks and uncertainties. Actual results and trends may differ materially from historical results or those projected in any such forward-looking statements depending on a variety of factors. These factors include, but are not limited to the following:

❖ a lack of working capital to aggressively fund product development and growth;

❖ achieving additional design wins for our IC products through the acceptance of our IC architecture and interface protocols by potential customers and their suppliers;

❖ the timing of customer orders and product shipments;

❖ customer concentration;

❖ lengthy sales cycle;

❖ our ability to enhance our existing proprietary technologies and develop new technologies;

❖ achieving necessary acceptance of our IC products by equipment suppliers to the cloud networking, data center, security and other systems markets;

❖ difficulties and delays in the development, production, testing and marketing of our IC products;

❖ reliance as a fabless semiconductor manufacturer on our manufacturing partners to assist successfully with the fabrication of our ICs;

❖ availability of quantities of ICs supplied by our manufacturing partners at a competitive cost;

❖ level of intellectual property protection provided by our patents, the expenses and other consequences of litigation, including intellectual property infringement litigation, to which we may be or may become a party from time to time;

❖ vigor and growth of markets for cloud networking, data center, security and other systems served by our licensees and customers; and

other risks identified in MoSys' most recent reports on form 10-K and form 10-Q filed with the Securities and Exchange Commission, as well as other reports that MoSys files from time to time with the Securities and Exchange Commission. MoSys undertakes no obligation to update publicly any forward-looking statement for any reason, except as required by law, even as new information becomes available or other events occur in the future.

Fast, Intelligent & Programmable Accelerators

Fabless semiconductor company enabling fast, high bandwidth throughput for networking, cloud infrastructure, video or any high-speed application

**Industry Leading Serial Intelligent Memory ICs
ACCELERATOR ENGINES**

❖ **Bandwidth Engine®**
- Serial "In-Memory Functions," intelligent data movement and computational operations

❖ **Programmable HyperSpeed Engine**
- Integrated RISC processors for user-defined operations

Patented Serial-Memory Technology

❖ Hold fundamental patents for serial memory
❖ Low-latency interface, protocol and memory

NASDAQ: MOSY
ISO 9001:2008 Certified
HQ: San Jose, CA
~115 Patents & Pending

Established Customers & Ecosystem
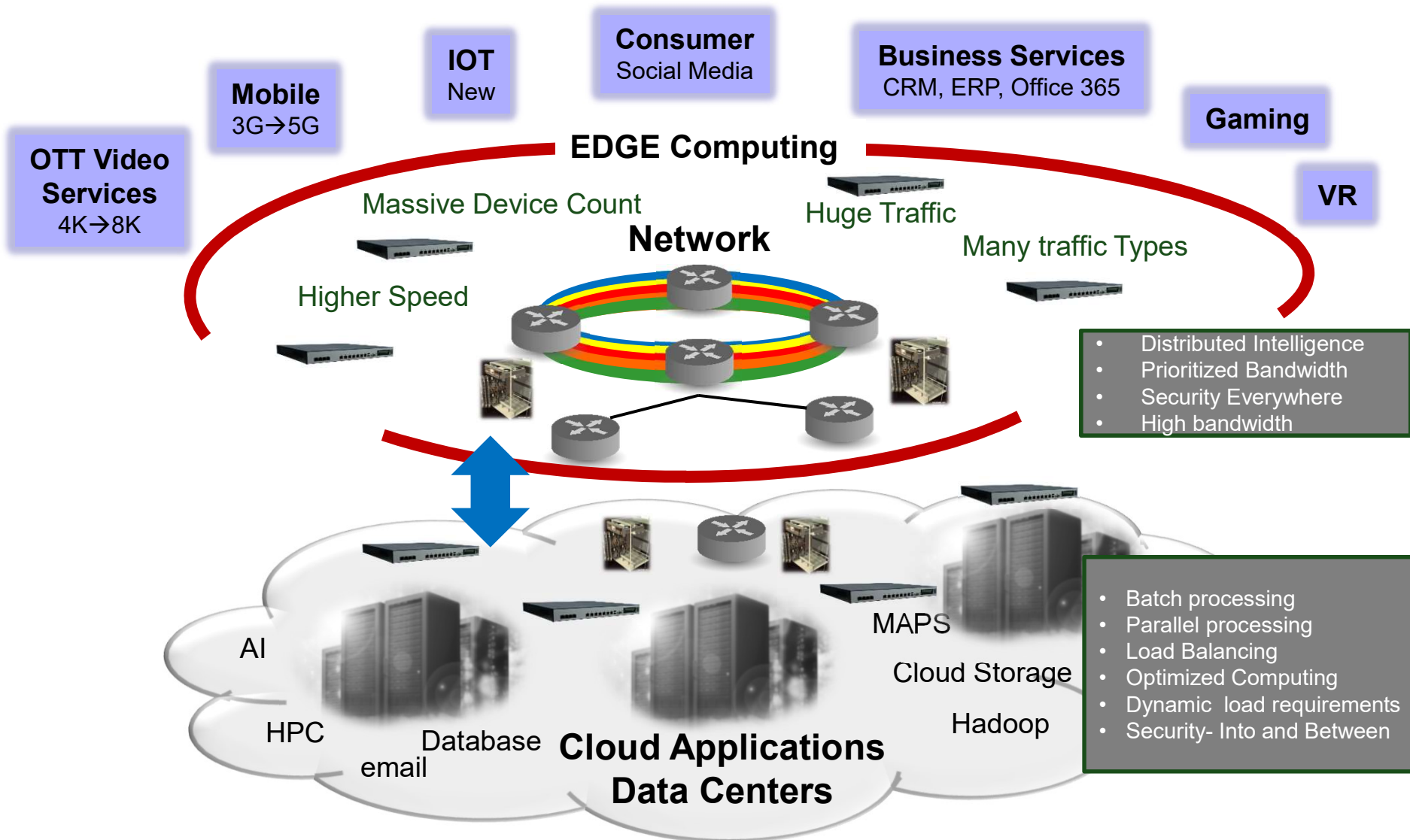
❖ Leading OEMS in Cloud Networking and Security
❖ Accelerate high-speed FPGA data processing
❖ New opportunities in Test/Monitor, Smart NIC, Video

Cloud Services, Mobility, IOT, Video
Users Demand Speed, Security and Consistency

MoSys

Mobile
3G→5G

IOT
New

Consumer
Social Media

Business Services
CRM, ERP, Office 365

Gaming

OTT Video Services
4K→8K

VR

EDGE Computing

Massive Device Count

Huge Traffic

Network

Many traffic Types

Higher Speed

- Distributed Intelligence
- Prioritized Bandwidth
- Security Everywhere
- High bandwidth

MAPS

Cloud Storage

Hadoop

AI

HPC

Database

email

Cloud Applications Data Centers

- Batch processing
- Parallel processing
- Load Balancing
- Optimized Computing
- Dynamic load requirements
- Security- Into and Between

Applications Need High Access Rate
Target Customers Throughout Cloud, Security, Data Center, Video…

MoSys

New Markets

Access
Cisco, H3C, Huawei, Ericsson
NEC, Fujitsu, Hitachi

Aggregation
Cisco, Nokia, Juniper, Huawei
ZTE, Fujitsu, NEC, Hitachi, H3C

Core
Cisco, Nokia, Juniper
Ciena, Fujitsu, Huawei, Infinera, ADVA

DC Security / Edge
Palo Alto Networks, Cisco, Fortinet
F5, A10, Radware

Data Centers
Cisco, Arista, Juniper, Huawei, H3C
White Box / ODM for Google, Microsoft, Amazon, FaceBook

Wireless / Ethernet
DLAM
EPON / GPON

Edge Routers
Service Routers
Metro Ethernet Switch

Optical Transport
Core Routers

Security DPI
Load Balancing

Switch / Routers
NIC / Smart NIC
Servers

Access Edge

Aggregation

Core

DC Security Edge

Data Centers

Cloud Data Center / Networks

Enterprise

Video - BRCST, 8K
Sony, JVC, Panasonic, NEC
Evertz, NHK, Media Links

Gov't / Industrial
Raytheon, Lockheed, Boeing, DARPA
Government Agencies

Test / Monitor
Spirent, Ixia
Napatech, Gigamon, Netscout

Smart NIC
Xilinx, Intel
Microsoft, Amazon, Google, FaceBook

Note: Companies listed include both actual and prospective customers for target markets; listings are not all-inclusive.
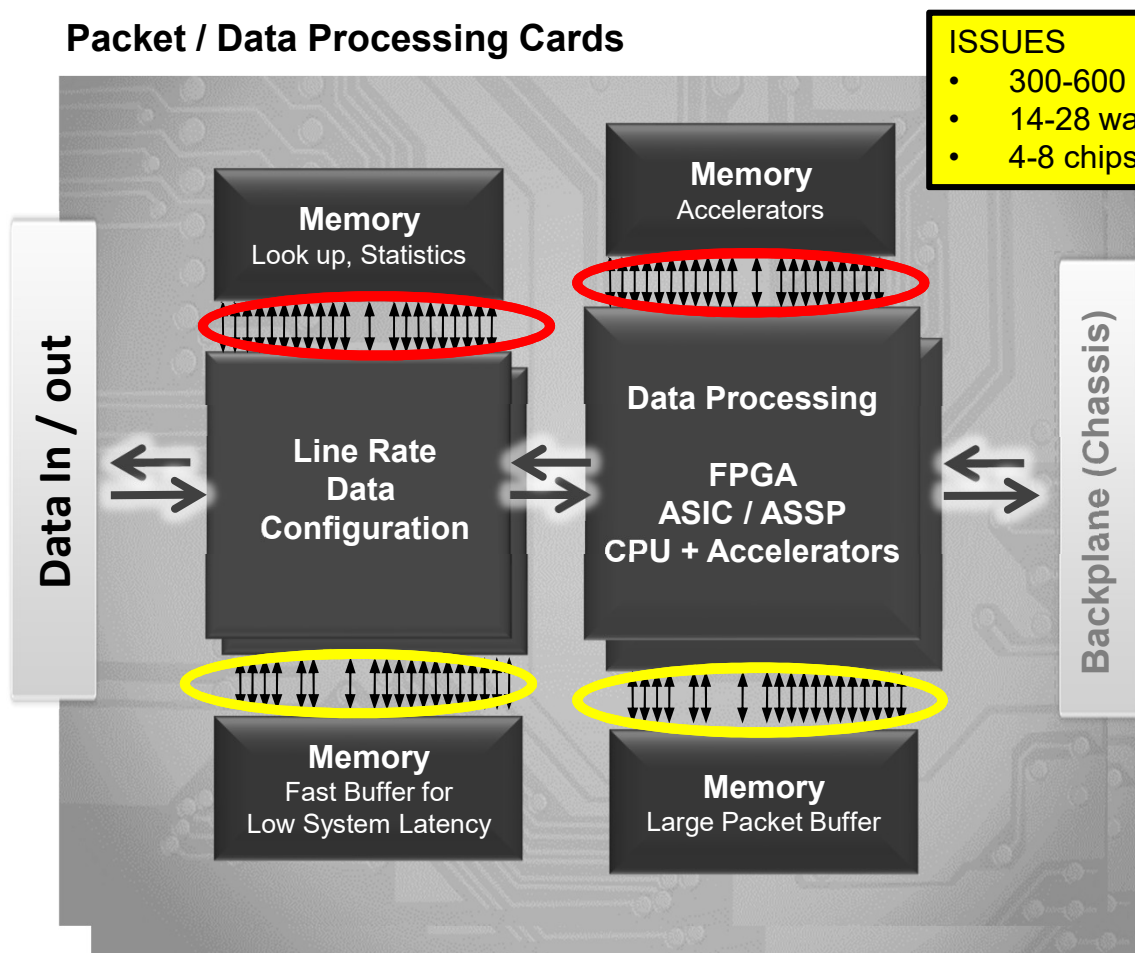
Legacy Memory is Bottleneck at 100G+ Speed
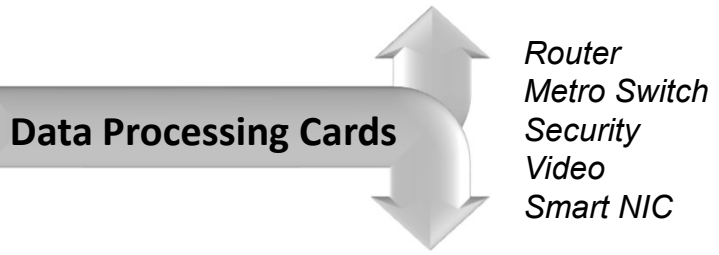## Limited Access Rate, Too Many Pins, Board Area
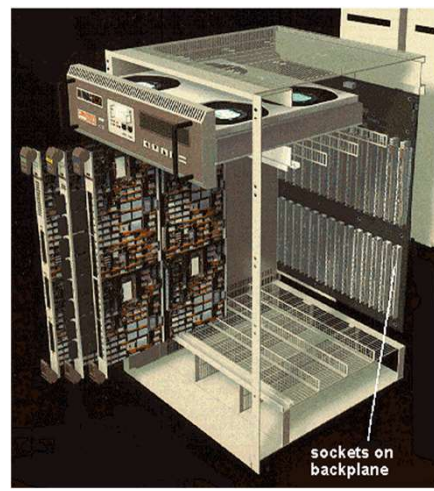
Packet / Data Processing Cards

ISSUES
- 300-600 pins
- 14-28 watts
- 4-8 chips

Data In / out

Memory
Look up, Statistics

Memory
Accelerators

Line Rate Data Configuration

Data Processing
FPGA
ASIC / ASSP
CPU + Accelerators

Backplane (Chassis)

Memory
Fast Buffer for
Low System Latency

Memory
Large Packet Buffer

Appliances / Servers
Single /few cards per System

Data Processing Cards

Router
Metro Switch
Security
Video
Smart NIC

Chassis
Up to 16+ Cards per System

sockets on
backplane

Data Processing Card Functions:
Router, Switch, Security, Monitor/Test, Video, Server Offload

MoSys Intelligent Serial Memory
For Networking to Testers to Video to IOT… when speed is key!

**High-Speed Serial Memories
Delivers Performance
Save Pins, Space, Power and Cost**

Memory Access

User-Defined Offload

Solution Comparison

Traditional	MoSys
300-600 ⇒	64-128 pins
14-28 ⇒	8-16 watts
4-8 ⇒	1-2 ICs

MoSys **Bandwidth Engine**

MoSys **Bandwidth Engine**

MoSys **Programmable Search Engine**

Data ≥ 100Gb/s

Protocol / Data Parsing
FPGA

Packet/Data Processing Engine/ Switch
FPGA

MoSys **Bandwidth Engine**

DRAM
Large Packet Storage

Applications in Metro Ethernet & Routers
Bandwidth Engine Wins on Performance, Size, Pins, Power, Cost

Metro Ethernet   (First design win - 2012)

100G Buffer, Lookup and Statistics
Carrier traffic classification features at line rate
4-9 units per card, 4-10 cards per system
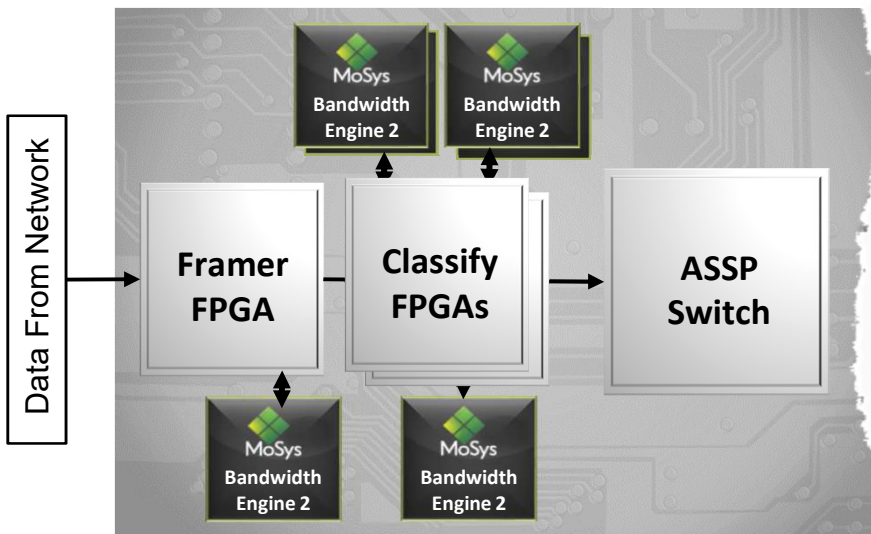
Edge Router   (First design win - 2013)

400G Oversubscription
Traffic smoothing prevents dropped packets
1-4 units per card, 4-10 cards per system
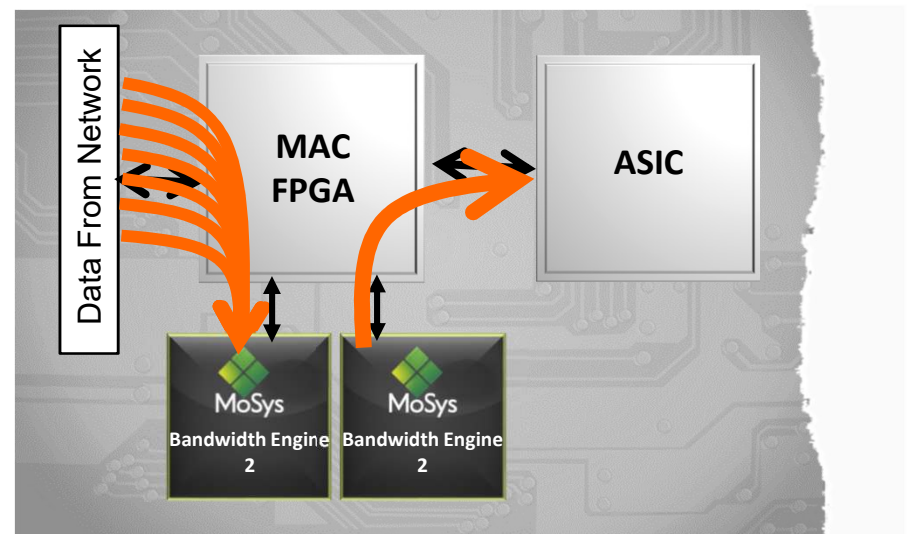
Advantages vs. Alternatives

❖ **Memory access performance**

❖ **Impossible with traditional memory**

❖ **Lower - pin count, area, power, cost**

❖ **Memory access performance**

❖ **RLDRAM won't fit or route**

Data-Center Applications
Cloud 100G, Security & SDN Drive New Requirements

Data Center Security (First design win - 2014)

Security Acceleration

Threat Prevention – multiple lookup and buffering functions
2-4 units per card, 1-10 cards per system
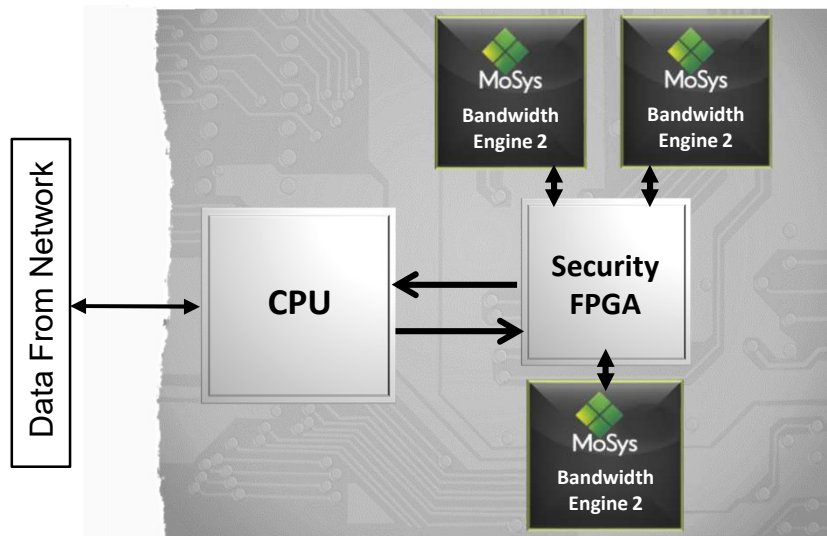
Routers (First design win - 2017)

Added Memory BW to NPS400

Accelerated Search Tables (shared memory)
2 units per card, 4-10 cards per system
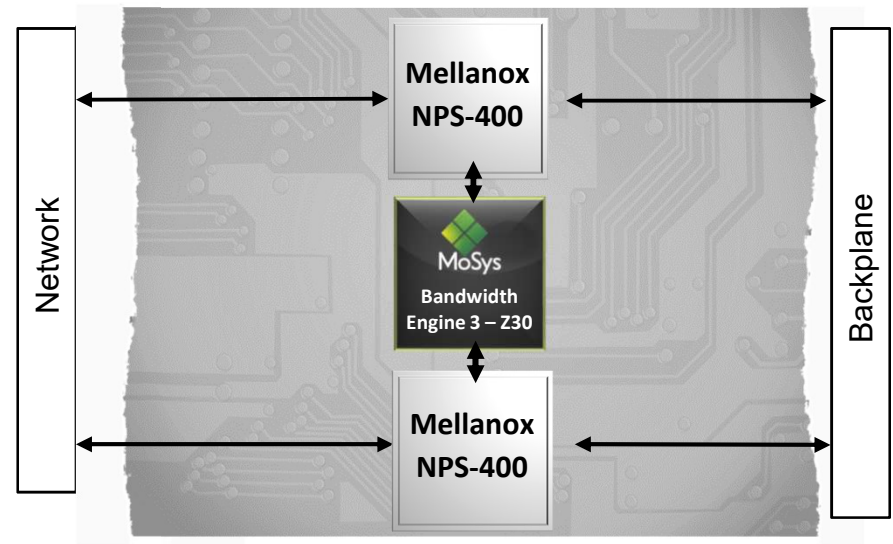
Advantages vs. Alternatives

- ❖ **Memory access performance**
- ❖ **RLDRAM won't fit or route**

- ❖ **Adds 50% more memory BW**
- ❖ **Accelerated table look up**
- ❖ **Small packet performance**

New Applications
Video Frame Buffers & Custom Search

Video (First design win - 2017)
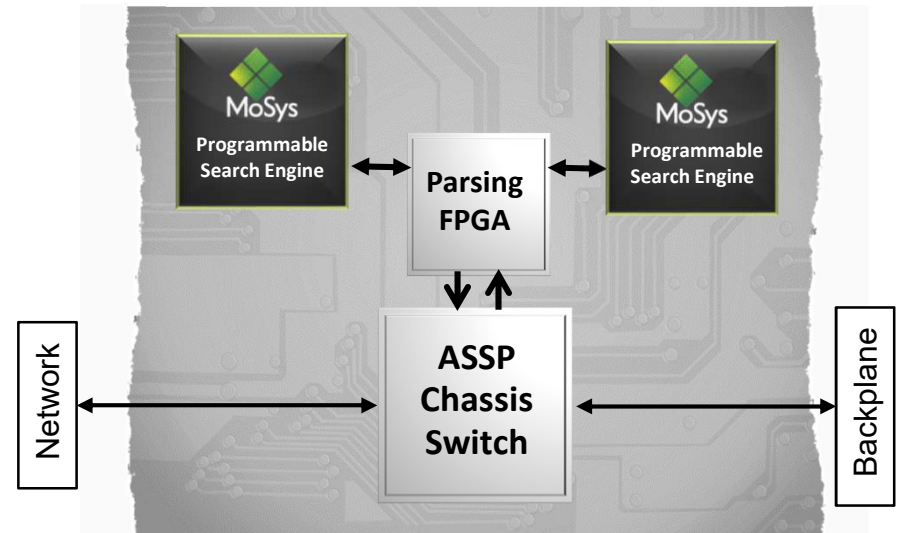
High Speed Frame Buffer
Enable High-Access Buffer and Editing
1-2 units per card, 1-4 cards per system
Keystone/Large projectors/etc.
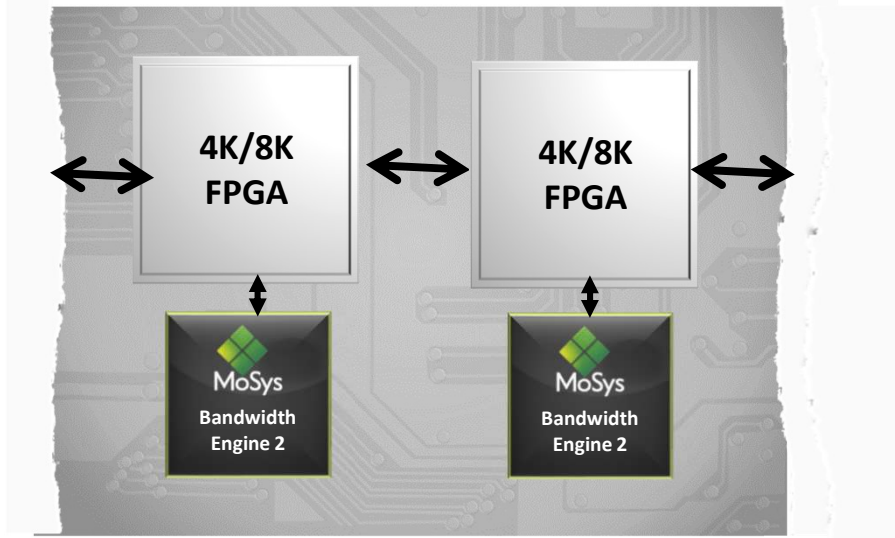
Data Center SDN Switch (New App Example)

Custom Search & Statistics
Accelerate Routing and Switch Functions
2-4 units per card, 1-10 cards per system

Key Bandwidth Engine / PHE Architecture Advantages

- ❖ **Memory Bandwidth / Access Rate**
- ❖ **Board Size**
- ❖ **BE3 option: share between FPGAs**
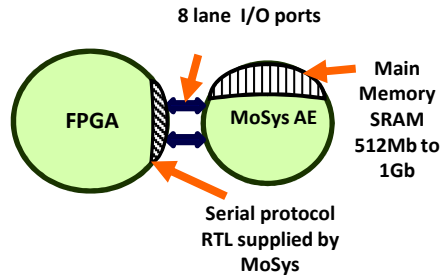
- ❖ **Memory Bandwidth → Features**
- ❖ **Custom Search Performance**
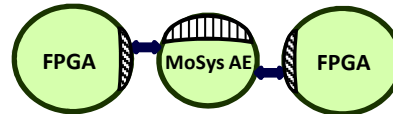
Proven Ecosystem with FPGAs
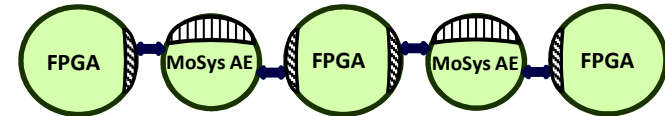## *Accelerating FPGA Design Time & Performance*
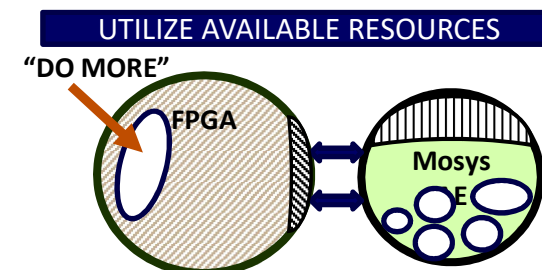
MEMORY SUPPORT

REPLACE UP TO 8 SRAMS/RLDRAMs

8 lane I/O ports

FPGA — MoSys AE

Main Memory SRAM 512Mb to 1Gb

Serial protocol RTL supplied by MoSys

DUAL PORT MEMORY

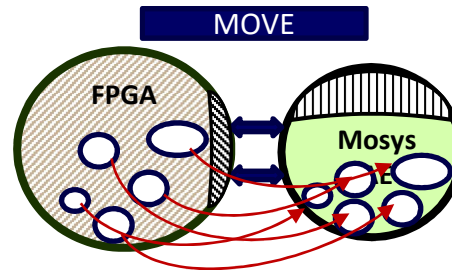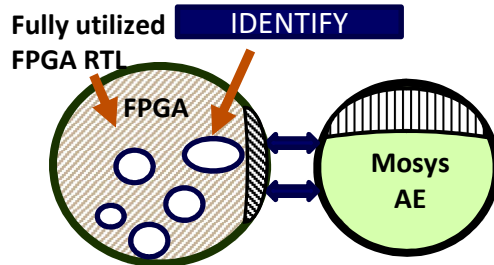FPGA — MoSys AE — FPGA

PIPELINE MEMORY

FPGA — MoSys AE — FPGA — MoSys AE — FPGA

Moving Functions into the FPGA – Frees up FPGA resources to DO MORE!

"Software Defined...Hardware Accelerated"

Fully utilized FPGA RTL

IDENTIFY

FPGA — Mosys AE

MOVE

FPGA — Mosys AE

UTILIZE AVAILABLE RESOURCES

"DO MORE"

FPGA — Mosys E

Why Move Functions into the FPGA?

RTL Simplify

- Combine multiple functions into one user-defined higher level function
- Define user functions not able to be done in the RTL or execute fast enough

Functions Run Faster

- Improve application performance
- Multiple copies can be installed and executed in parallel
- Execution priority can be set
- System Flexibility

DO MORE IN THE FPGA!

- Simplify RTL design by moving common or frequently called functions into the PHE
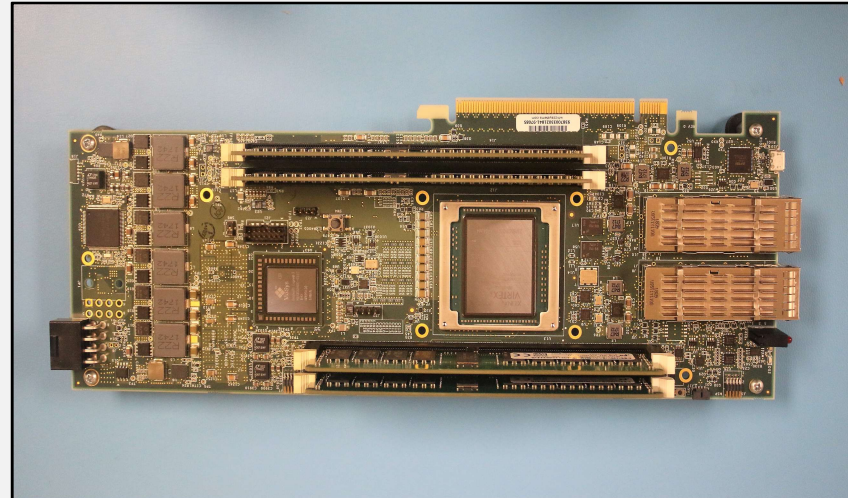- Add new features!

Proven Platforms with Xilinx & Intel FPGAs

Intel/Altera® Stratix® IV, Stratix V, Arria® 10

Xilinx® Virtex® -6, Virtex-7, UltraScale™

MoSys Cheetah PCIe Xilinx Ultrascale+ reference board

MoSys Provides Reference Designs to Speed Customer Design Process

Memory Controller & App Functions

GCI* PCS / Framer

Tx
Rx

4, 8
4, 8

GigaChip.

HPE-S30

GCI
Tx
Rx
Tx
Rx

Scheduler

Processor Engines (PE)

1Gb Memory

Bandwidth Engine® IC
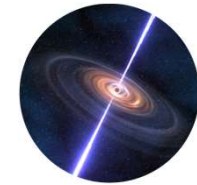
1T-SRAM

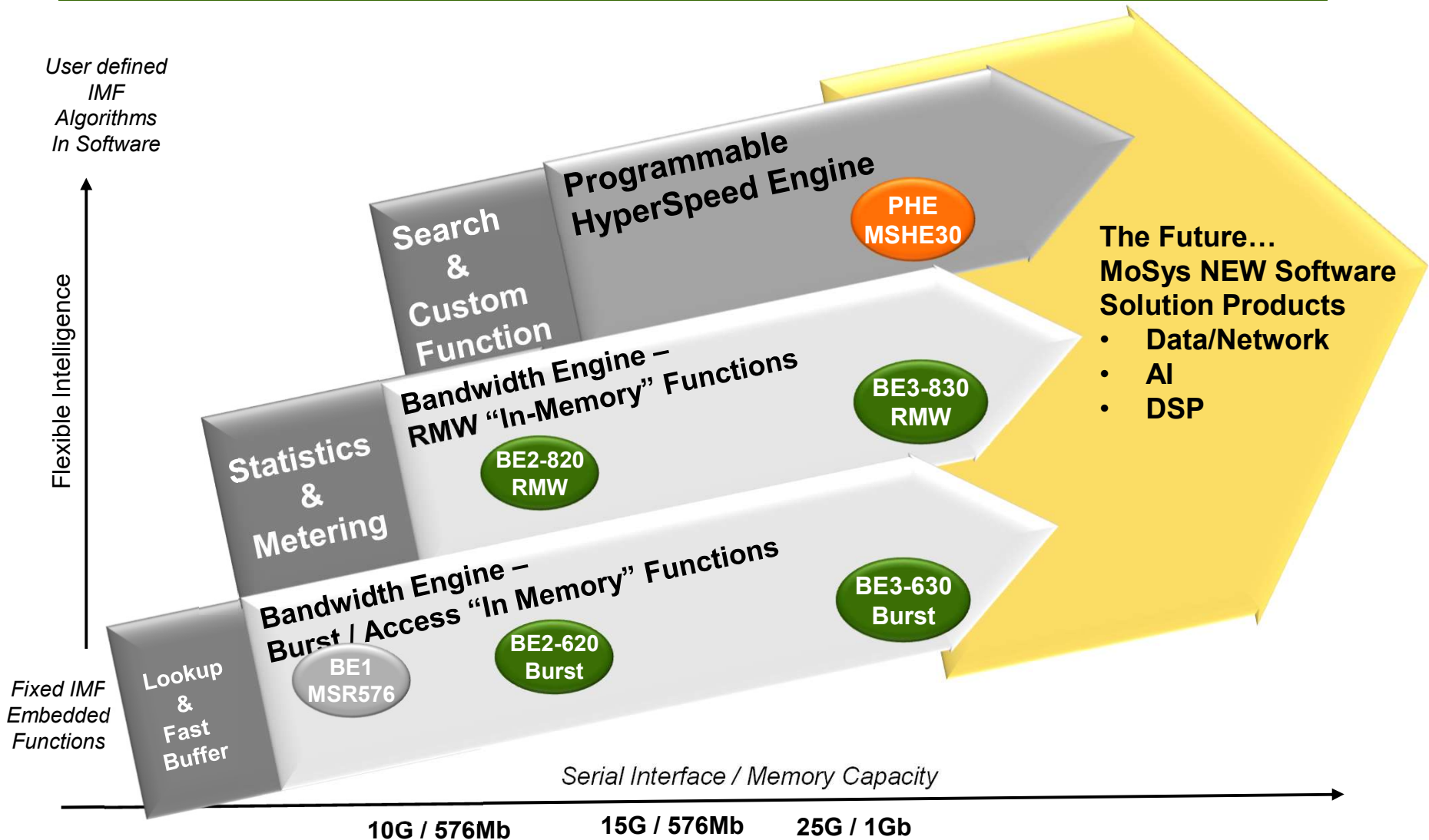ALU Macro Functions

Bit Safe Technology
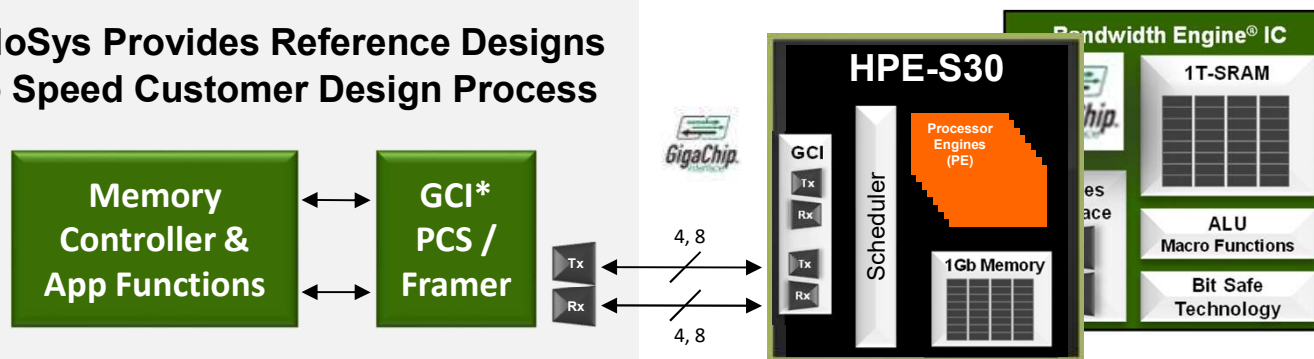
*MoSys interface

BLAZAR Accelerator Engines
"Software Defined…Hardware Accelerated"

Serial Interface, Integrated Fast Memory & Intelligence…And NOW Software Products

User defined IMF Algorithms In Software

Flexible Intelligence

Search & Custom Function

Programmable HyperSpeed Engine

PHE MSHE30

The Future…
MoSys NEW Software Solution Products
- **Data/Network**
- **AI**
- **DSP**

Statistics & Metering

Bandwidth Engine – RMW "In-Memory" Functions

BE3-830 RMW

BE2-820 RMW

Bandwidth Engine – Burst / Access "In Memory" Functions

BE3-630 Burst

Lookup & Fast Buffer

BE1 MSR576

BE2-620 Burst

Fixed IMF Embedded Functions

Serial Interface / Memory Capacity

10G / 576Mb   **15G / 576Mb**   **25G / 1Gb**

Power of the PHE - Programmable Performance
## "Software Defined…Hardware Accelerated"

Programable HyperSpeed Accelerator Engine

- *Hardware and software platform*
- *32 integrated processors*
- *25 billion transactions per second!*

Ability for **User Defined Embedded "In Memory Functions"**

MoSys IDE S/W Development Platform

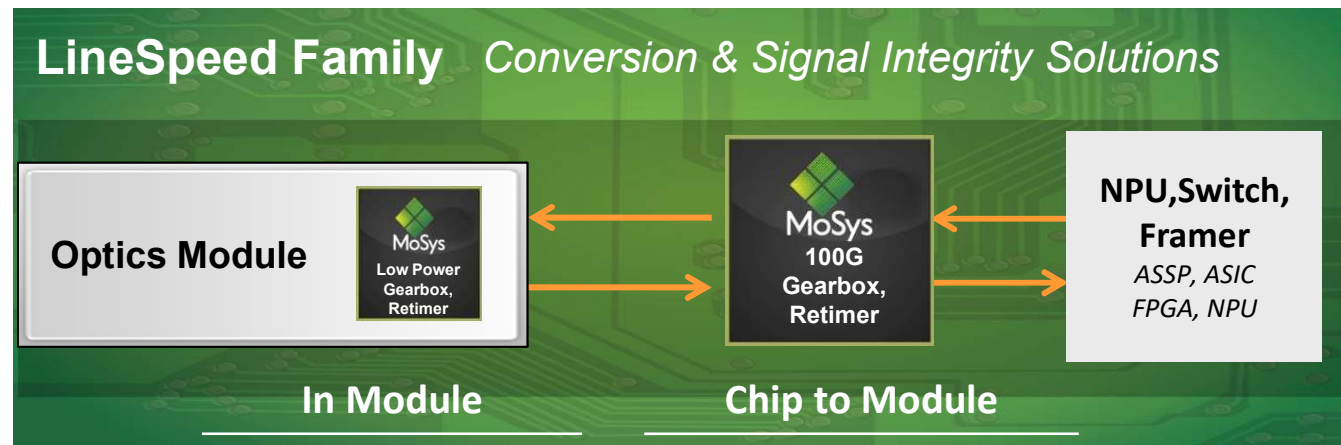*Provides a path for future products by defining New algorithms and functions to be included on the PHE*
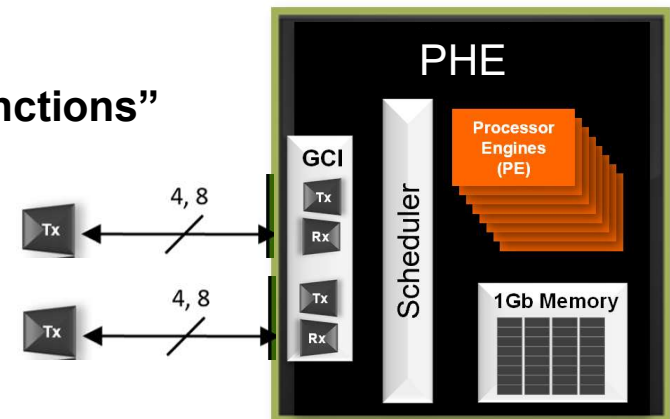
Key Bandwidth Engine PHE Architecture Advantages

- ❖ **Memory Bandwidth / Access Rate**
- ❖ **Board Size**
- ❖ **Dual Port: share between FPGAs**

- ❖ **Custom Algorithms → Features**
- ❖ **Programmable Performance**

LineSpeed™ 100G PHY Products

LineSpeed Family — *Conversion & Signal Integrity Solutions*

| Optics Module | MoSys Low Power Gearbox, Retimer | MoSys 100G Gearbox, Retimer | NPU, Switch, Framer ASSP, ASIC FPGA, NPU |

In Module **Chip to Module**

LineSpeed PHY Family

In Module	Chip to Module
MSH321 (S) 100G MLG Gearbox	MSH320 100G Gearbox w/FEC
MSH221 (S,F) 100G Octal Retimer w FEC	MSH322 MLG Gearbox
	MSH225 10 Lane Full Duplex Retimer
	MSH222 100G FD Quad Retimer w/FEC

❖ **Industry-standard interfaces**
❖ **Flexible Gearbox, Retimer and FEC functions**
❖ **Strong signal Integrity**
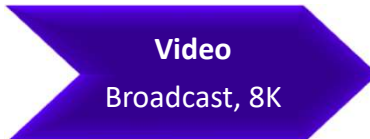❖ **Low-power options**

Expanding Market Opportunities
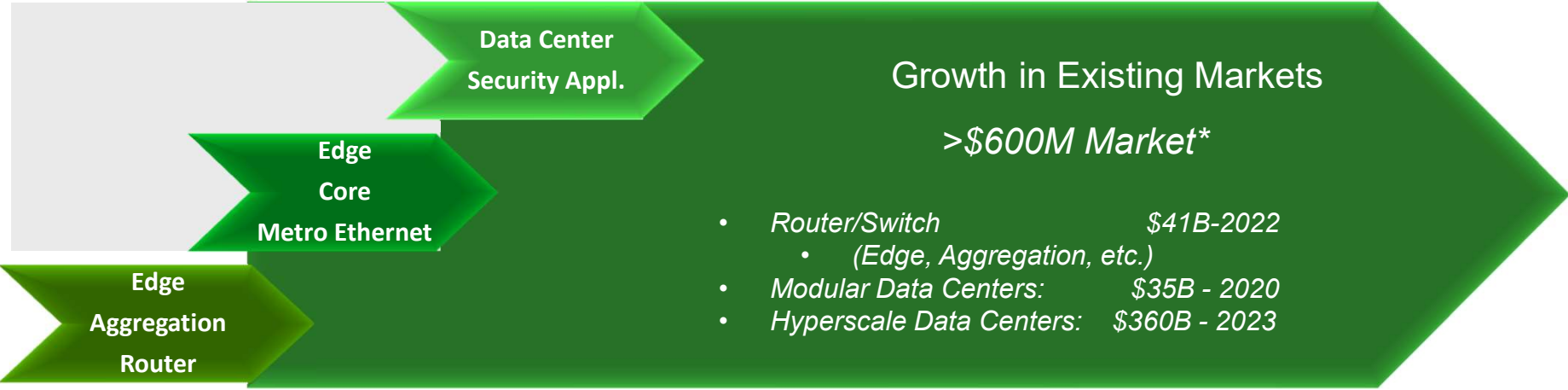
New Markets Requiring Bandwidth & Access Performance

Existing Roadmap Addresses Growing Markets
- Leading edge performance
- Future optimizations in software

Long Product Life: 5-10 Years

Smart Switch & NIC
SDN, Big Data

Indust / Gov't
Acceleration

Video
Broadcast, 8K

Monitor & Test

New Emerging Market Opportunities
>$400M+ Market*

Data Center Security Appl.

Edge
Core
Metro Ethernet

Edge
Aggregation
Router

Growth in Existing Markets

>$600M Market*

- *Router/Switch $41B-2022*
  - *(Edge, Aggregation, etc.)*
- *Modular Data Centers: $35B - 2020*
- *Hyperscale Data Centers: $360B - 2023*

2012   2018   2019….

* Market definition and other information is based on management opinion.

Experienced Management Team

Dan Lewis — CEO

Jim Sullivan — CF0

Gus Lignos — VP Sales

Michael Miller — CTO

Sinan Doluca — VP Engineering & Operations

Summary Income Statements

$ in millions, except EPS

Non-GAAP*	4Q 18	2018	1Q 19	2Q 19
Total Revenue	$ 3.5	$ 16.6	$ 3.5	$ 3.1
Product	4.2	$ 15.1	3.4	2.8
Royalty/other	0.2	1.5	0.1	0.3
Product GM %	70%	*58%*	60%	59%
Total GM %	72%	*62%*	62%	60%
R&D	0.9	*3.7*	1.2	0.9
SG&A	0.8	*3.7*	0.9	0.9
Total Op Ex	1.7	7.4	2.1	1.8
Op Income	0.7	2.8	-	-
Net Income	$0.7	$ 2.2	$ -	$ -
Adjusted EBITDA**	$0.9	$ 3.4	$ 0.1	$ 0.1
EPS (basic)	$0.02	$ 0.15	$ -	$ -

Key Initiatives:

❖ **Establish Sales & Operational Scale**

❖ **Achieve/Maintain Profitability**

❖ **Reduce Cash Burn**

❖ **Improve Cash Position**

* Non-GAAP: Excludes stock-based compensation, amortization of intangibles and restructuring/impairment charges. See reconciliation of GAAP to non-GAAP results on slide 22.

** Adjusted EBITDA defined as GAAP net income (loss) before interest expense, income tax provision, depreciation and amortization, as well as stock-based compensation, intangible asset amortization and restructuring/impairment charges. See reconciliation of GAAP to non-GAAP financial information on slide 15.

Balance Sheet

	Q2 - June 30, 2019 *(in millions)* Actual
Cash	**$7.4**
Total Assets	**$11.5**
Deferred Revenue	**$0.1**
Convertible Notes* (Long-Term)	**$2.7**
Total Liabilities	**$4.3**
Stockholders' Equity	**$7.2**
Total Shares Outstanding	**43.2**

* Key terms: i) Interest rate 8% (PIK at company's option), ii) Convert price - $0.57 per share, iii) $2.7M due in full in August 2023 and iv) no covenants

Investment Highlights

- ❖ **Hardware Products Accelerate System Performance for Networking, Security, Cloud, Video, Testers, etc.**

- ❖ **Expanding product offering to include Accelerating Software Products**

- ❖ **Highly Differentiated Solutions, Very Long Product Life Cycles**

- ❖ **Market Trends & Partnerships Pave Way for Future Success**

- ❖ **Dedicated Organization, Proven Veteran Leadership**

Fast, Intelligent & Secure
Data Throughput

Reconciliation of GAAP and Non-GAAP Financial Information

$ in 000s

	4Q 18	2018	1Q 19	2Q 19
GAAP net income (loss)	$ (9,261)	$ (11,410)	$ 10	**($ 103)**
Stock-based compensation expense	228	675	(4)	**119**
Restructuring & impairment charges	9,697	12,856	-	**-**
Amortization of intangibles	28	112	-	**-**
Non-GAAP net income	692	2,233	6	**16**
EBITDA adjustments:				
Depreciation	112	598	72	**39**
Interest expense	50	551	54	**56**
Prov (benefit) for income taxes	9	14	-	**-**
Adjusted EBITDA	$ 863	$ 3,396	$ 132	**$ 111**

Thank You

Dan Lewis
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Jim Sullivan
Chief Financial Officer
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jsullivan@mosys.com