Nov., 2019

ASPEED in Brief

- Established in Nov. 15th , 2004
- Paid-In Capital: NTD 341M (USD 10.99M)
- Number of Employees: 90
- Location:
  - ASPEED Technology Inc.: Hsinchu City, Taiwan
  - ASPEED Technology (U.S.A) Inc.: San Jose, USA
  - ASPEED Technology (India) PLT.: Bangalore, India

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2019 Recap

Tariff War Impacts:

- Server ODMS already moved their production lines outside of China→ No more impact

- The impact is more serious than our expectation on PC/AV markets

- Server market demand went up dramatically since Q3 and continue into Q4

- We might get the advantage from tariff war in the future
    - Market share shift in China benefits ASPEED's customers
    - China Domesticlization

- Shipment:
    - Q1: 1.85m
    - Q2: 1.76m
    - Q3: 2.4m

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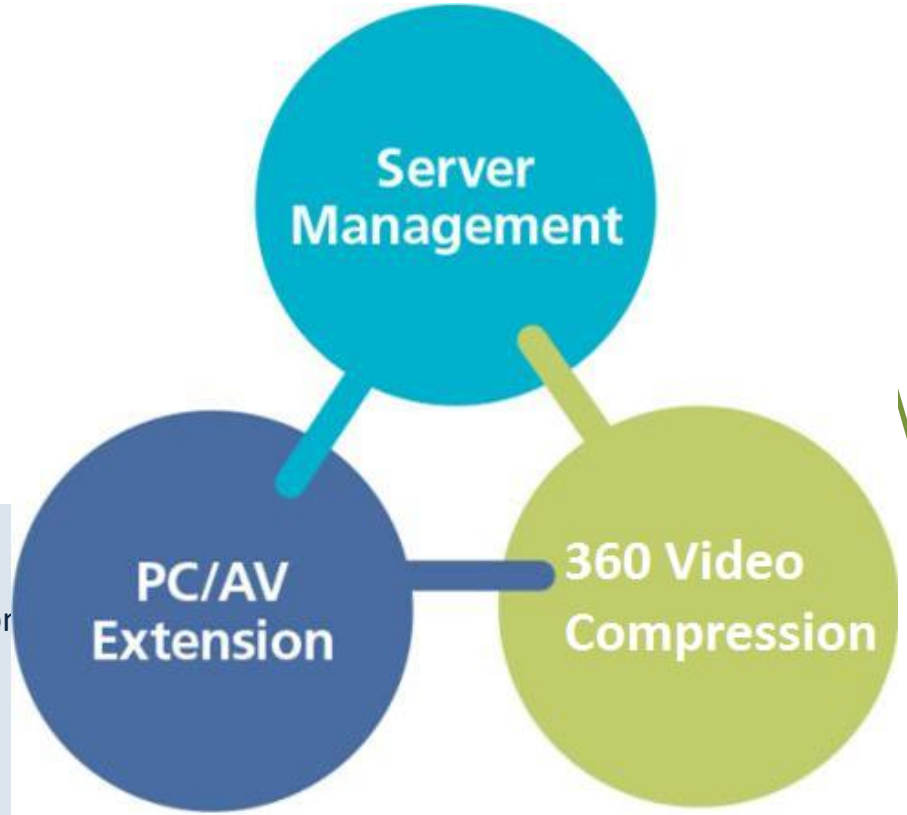
Product Lineup

AST1010
AST2200 / AST2150
AST2300 / AST1300 / AST1050
AST2400 / AST1400 / AST1250
AST2500 /AST2510 / AST2520 / AST2530
AST2600/Pilot5

28nm LP Process
Dual Core 1GHz CPU
DDR4 SDRAM
Robust Security Architect and Features
A0: July/2019
A1: Feb/2020



AST1520 / AST1525
AST1620/AST1625
AST1530/1535/1630

130nm LP Process
Support 4K@60 Resolution
<80 us latency
1GHz CPU
DDR4 SDRAM
ES: Q2/2020

AST1220

40nm LP Process
1GHz CPU
PLDDR3 SDRAM
6-Cam Real Time Stitching
H.264/265 4k2k Endoding
PCIe Gen-II
ES: May, 2018
PS: Q1/2019

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Product Portfolio

Server Management SoC Solutions

PC/AV Extension SoC Solutions

360 Spherical Image Processor SoC

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Remote Server Management

Remote Server Management

2005~2017

Remote Management SoC for Servers

2017~2021

Remote Server Management for Datacenters

2020~

Remote Server Management for Beyond

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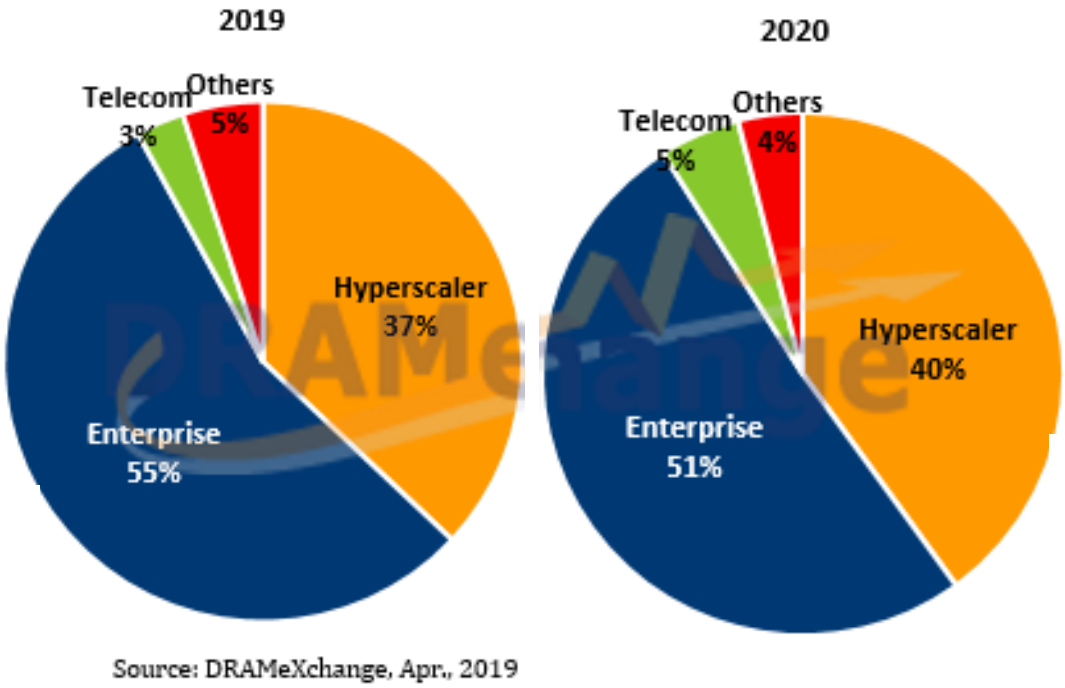
Server Trend Now

Worldwide cloud IT infrastructure has been shifting to cloud & this trend is going to continue.

- 20% in 2013 vs. 45% in 2019



Source: DRAMeXchange, Apr., 2019

Then

On-premise
Centralized system

Now

Cloud distributed system

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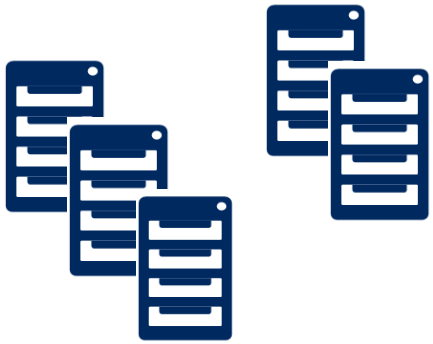
Server Trend Now

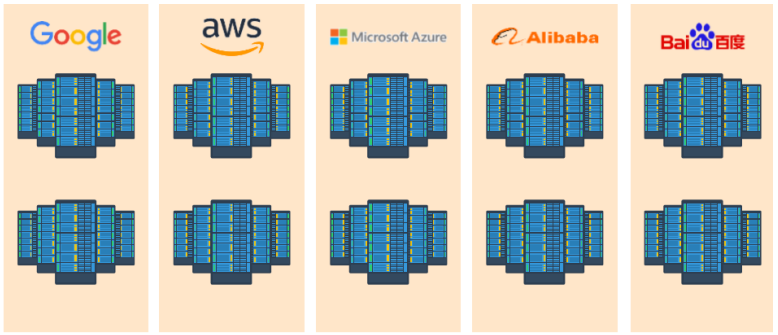
Then

Fragmented workloads



Now

Consolidated workloads



Top 3 accounts for 56% of cloud infrastructure

Workload Specialization

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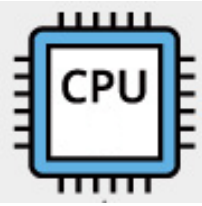
Heterogenous Servers – Workloads specialization needs different server



TPU

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Remote Server Management

2020~ onward

Remote Server
Management for Beyond

IoT

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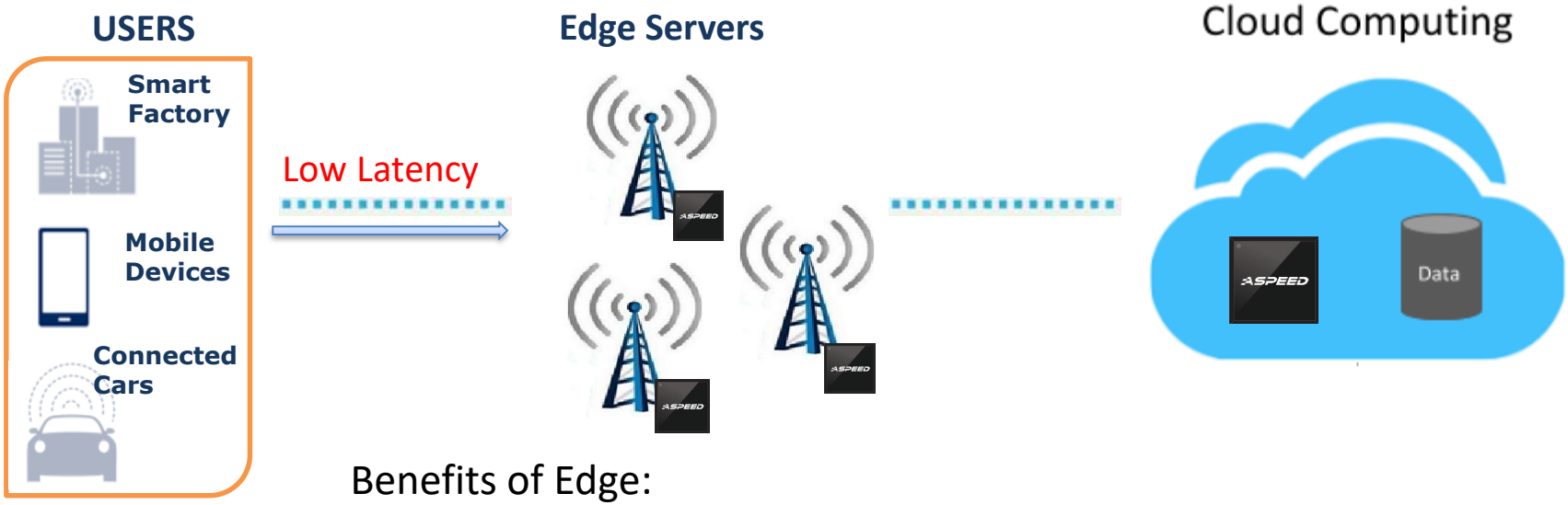
WHAT IS EDGE COMPUTING?



Benefits of Edge:

- Decentralized
- Latency elimination, real-time data processing
- Respond to data instantaneously
- Cost effective

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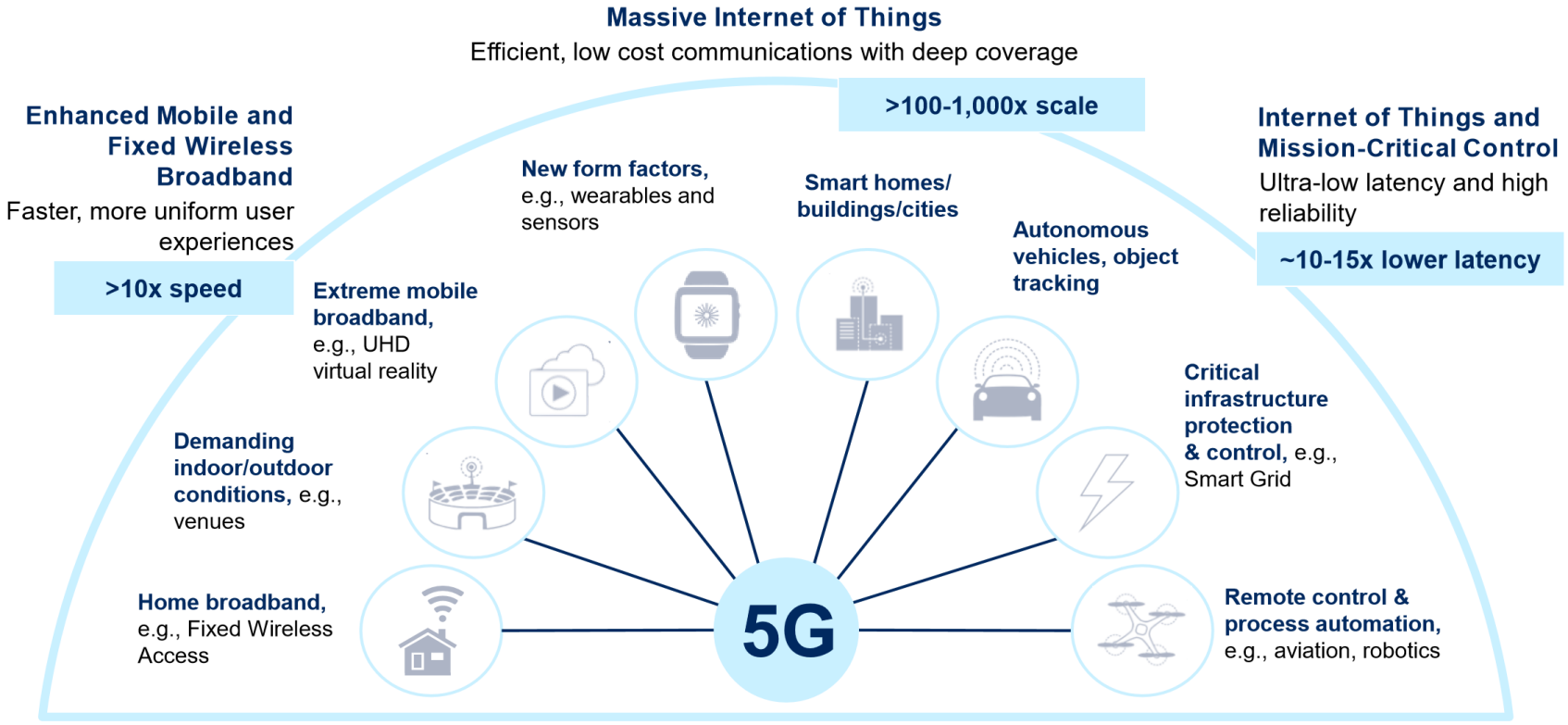
5G enables IoT

- With improvement in speed, latency & number of connections handled, 5G enables new use cases
- Mission Critical → BMC is needed
- ASPEED AST2600 READY for industrial spec requirement. -40~+85 degree C.



Source: McKinsey analysis

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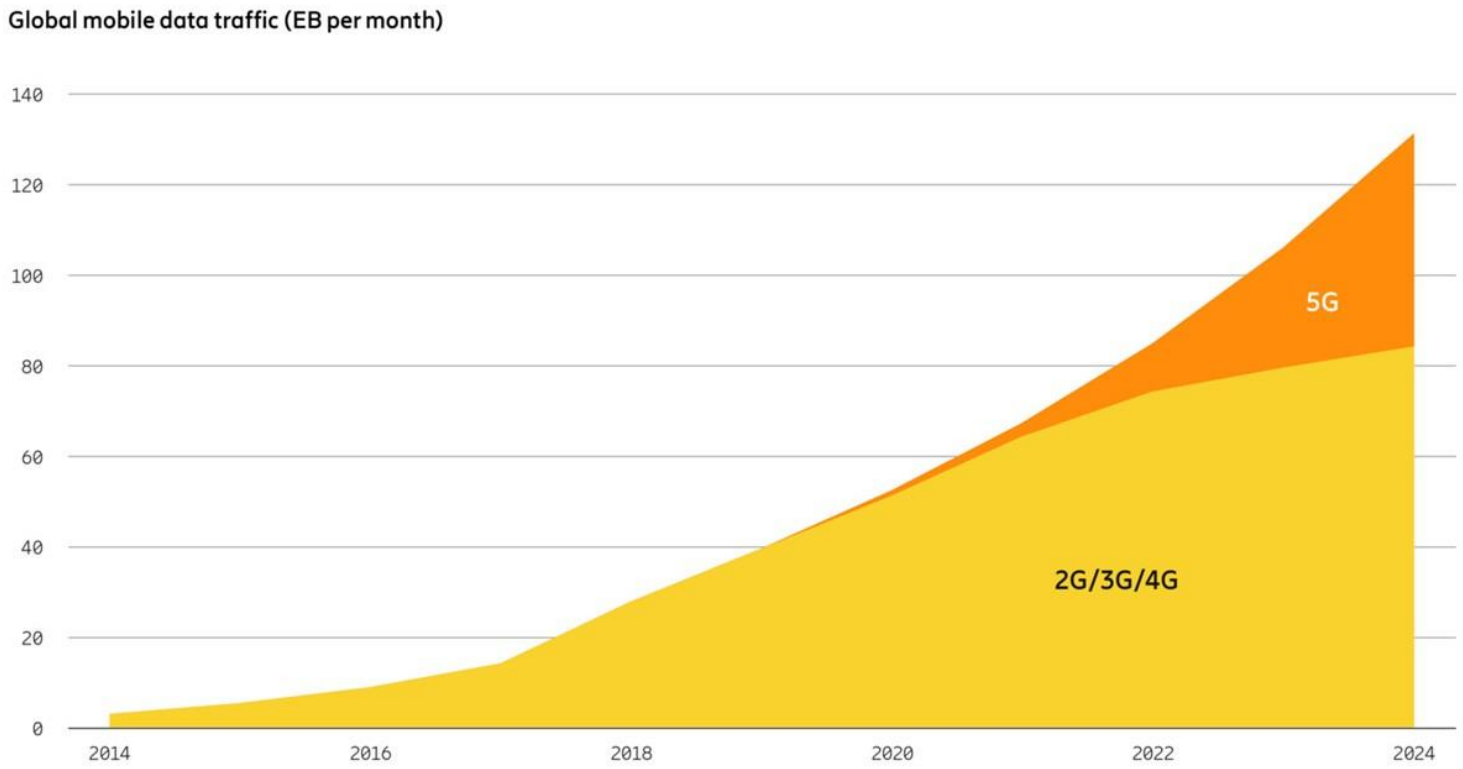
5G Drives incremental Traffic

Key Findings: In 2024, 5G networks will carry 35%of mobile data traffic globally
- Total mobile data traffic continues to increase globally and is predicted to reach 131 exabytes (EB) per month by the end of 2024.
- This means a 30% CAGR Growth from 2018 and 2024..
- Doesn't include IoT traffic



Source: Ericsson Mobile Data Traffic

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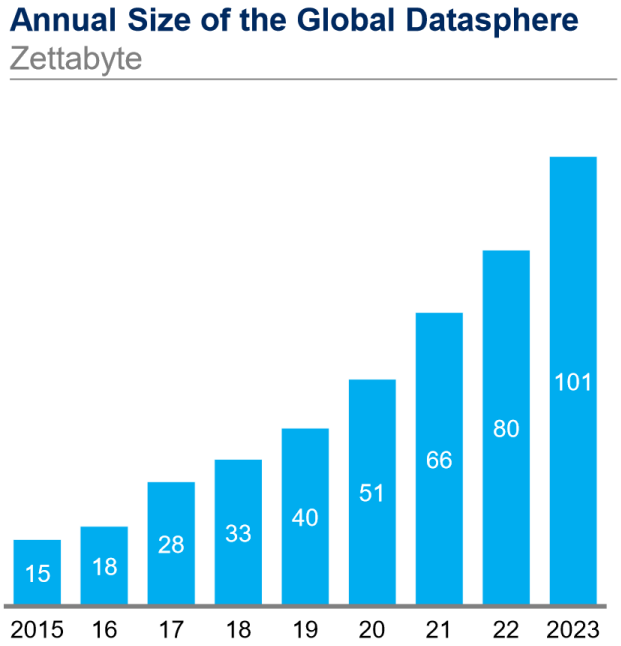
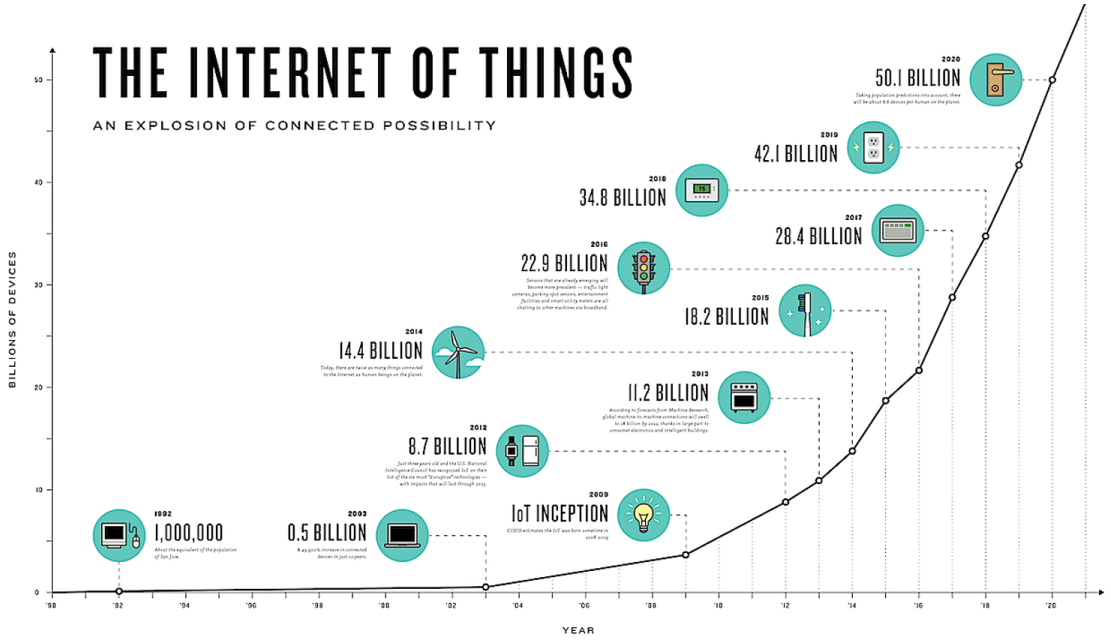
Remote Management for Beyond

- With more data and IoT devices, computational needs continue to grow
- New applications will continue to drive server demand



1 Zettabyte = 1 Million Petabytes



1 Trillion IoT Devices in next 20 years

Source: McKinsey analysis

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7th GEN ASPEED AST2600

Baseboard Management Controller (BMC) chip

Samples AVAILABLE NOW! MP in 2020

Optimize Performance | High Computing Power | Low Power Consumption | Enhanced System Security

AST2600 Schedule

FIRST IN MARKET!!

AST2600 is World first 28nm BMC chip for next generation X86 servers!

ASPEED launched AST2600 almost a year before our competitor.

AST2600 AO sample out — July

Sample for all ODMs — Nov.

MP Ready

2019 | **2020** | **2021**

Aug. — Early sample

Feb. 2020 — A1 Sample for all customers

New server platform

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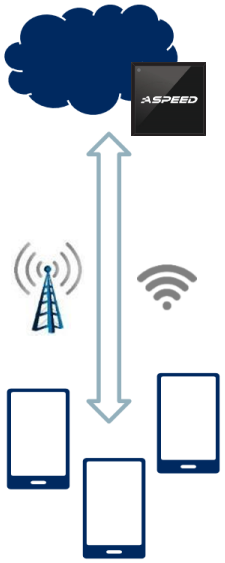
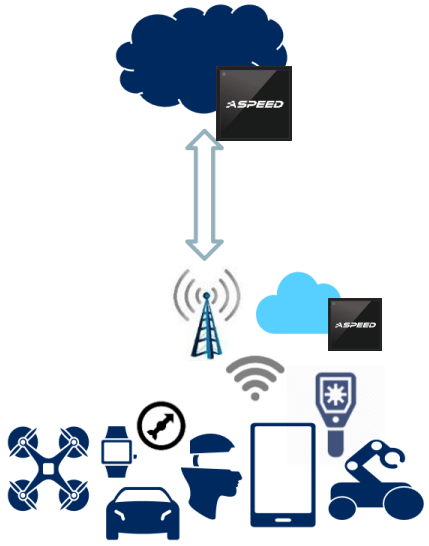
Server Trend- Mix of Cloud and Edge

Future will be mix of cloud and edge computing.

1980-2005	2005-2020	2020+
Personal computing and on-premise workstations	Cloud computing	Cloud and intelligent edge computing





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Product Portfolio

Server Management SoC Solutions

PC/AV Extension SoC Solutions

360 Spherical Image Processor SoC

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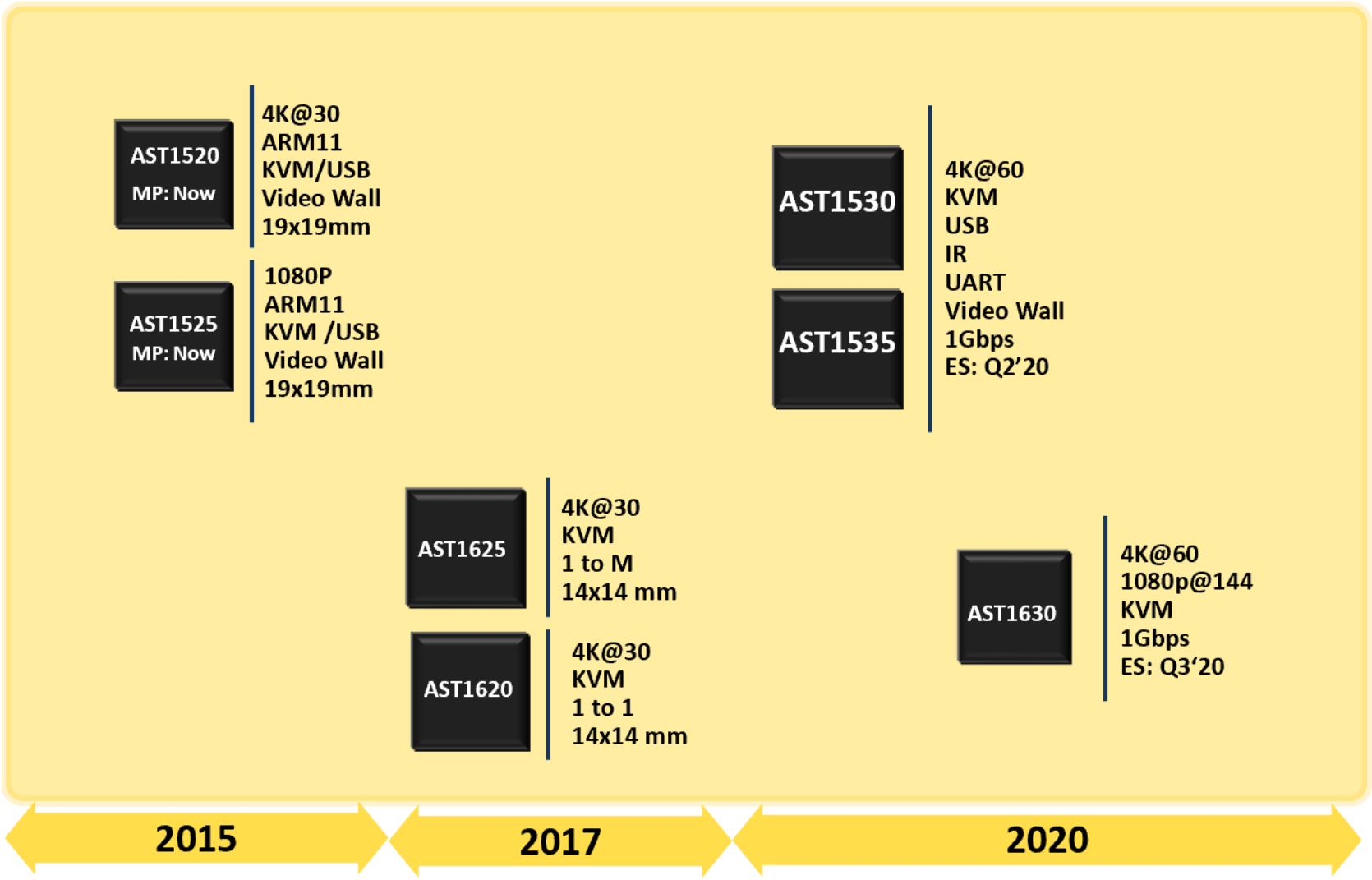
A/V over IP Roadmap



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Key Technologies

AV over IP

USB over IP

Serial over IP

IR over IP

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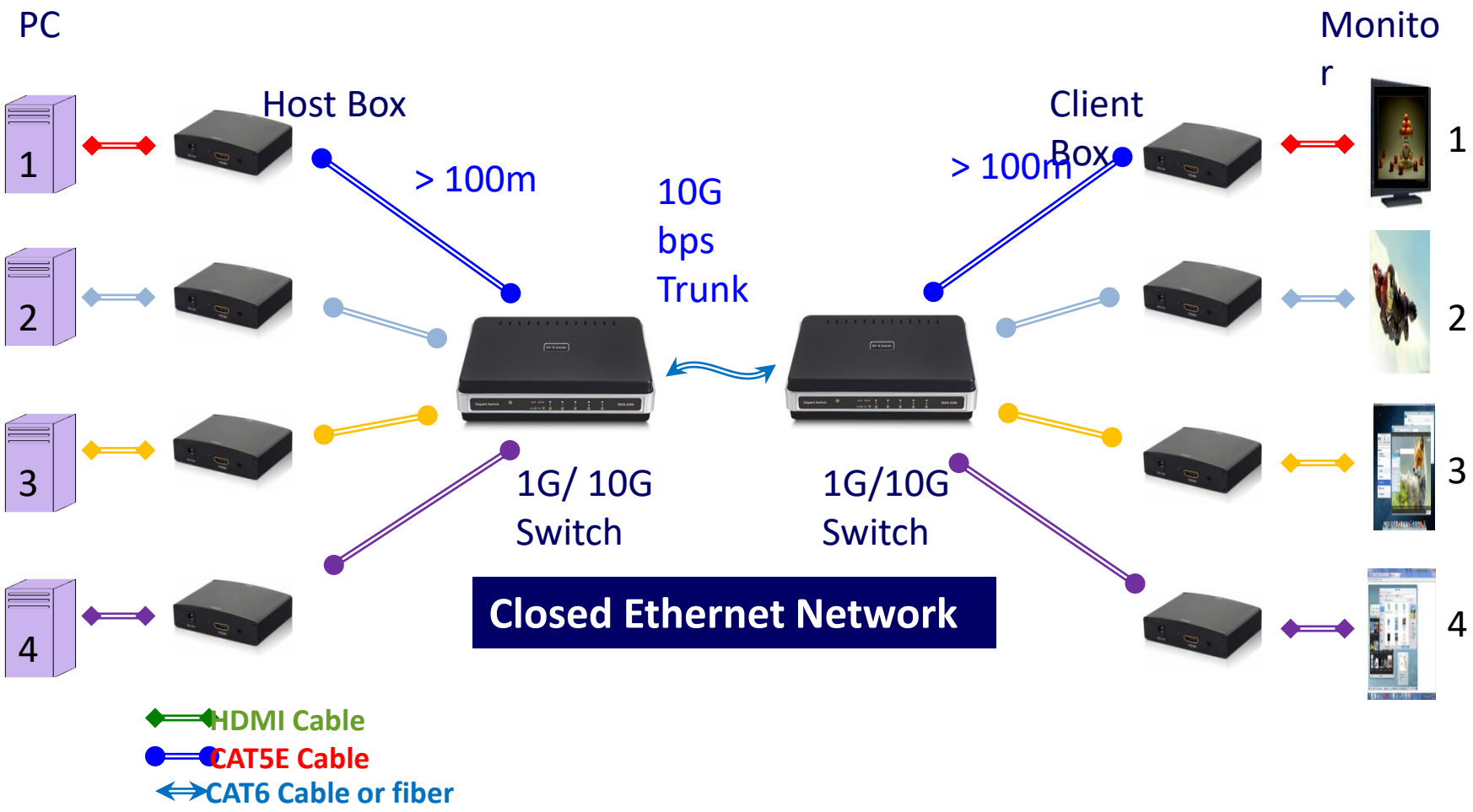
Application System Topology

Computer Centrolized



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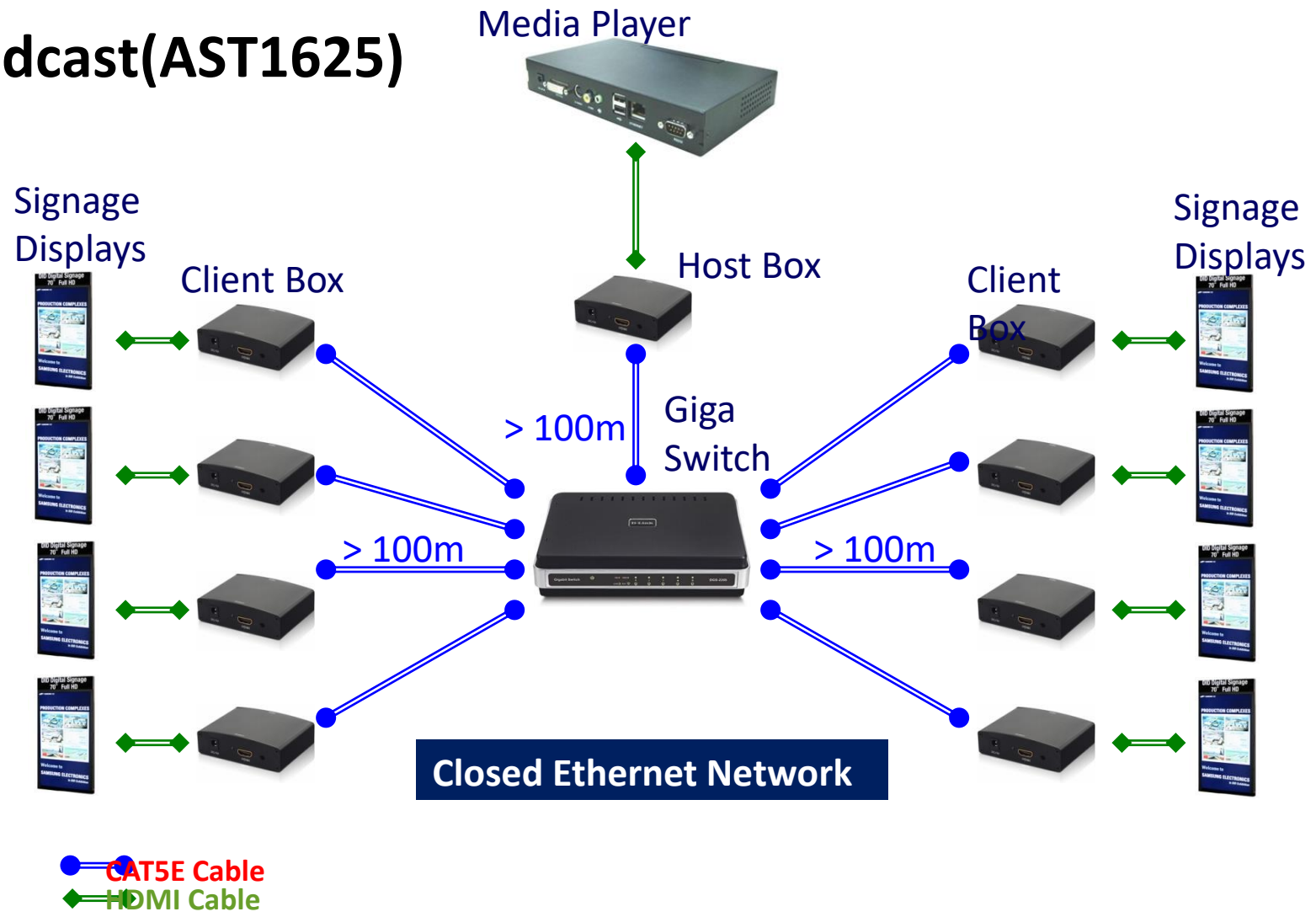
Application System Topology

Multicast (AST15xx)

Broadcast(AST1625)



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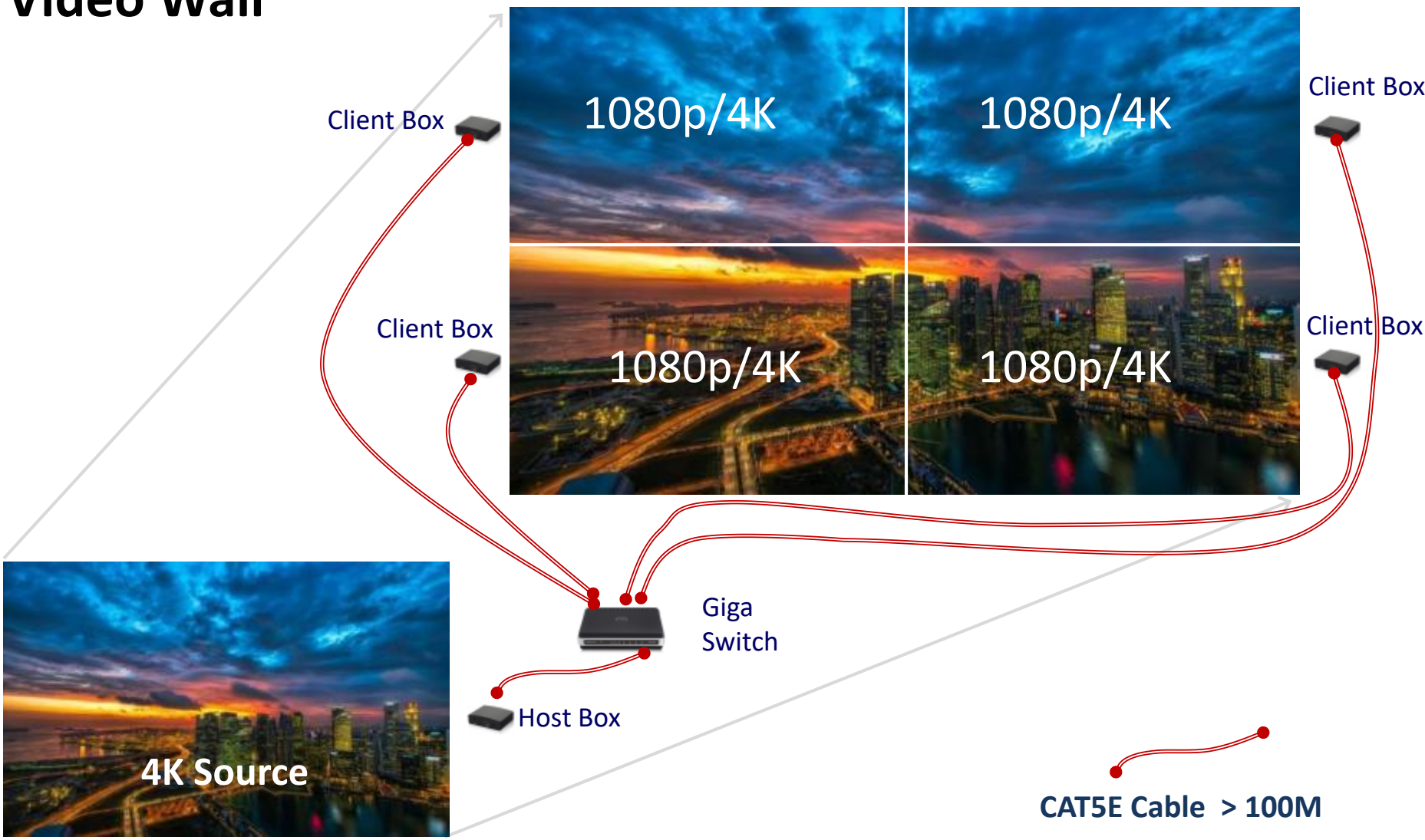
AST15xx Application System Topology

Video Wall



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Cupola360 滿足市場創新應用

360 Video Conference

360 Camera & Live Streaming

Cupola360

360 Dash Cam

ePTZ Camera

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Cupola360 滿足市場發展趨勢

- **360攝影與直播**:
  1. 網紅經濟與直播平台快速崛起
  2. 國際360廠商 (RICOH, INSTA360 , GOPro , Kandao…) 持續投入創新
  3. 全景360攝影應用逐漸普及 (房地產, 教育, 商業行銷)
  4. 電信運營商積極尋求5G新應用

- **ePTZ 安防市場**:
  1. 360安防相機獲得更寬廣的全景視野，符合人類視覺的需求
  2. 減少了傳統攝影機的用量，降低了安裝費用
  3. 體積小重量輕、隱密度高安裝容易、堅固耐用不需加熱和通風、維護需求極低等

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Cupola360 新市場發展趨勢

視訊會議系統:

1. Huddle room（非正式小型會議空間）普及➔ 小空間, 大視角的視訊設備需求增加
2. 雲視頻會議軟體服務商(Skype, Zoom…)成長快速, 便宜實惠的消費級視訊設備需求日增

行車紀錄器:

1. 惡意交通事故案件增加, 民眾自保意識提高
2. 政府立法強制商用客貨車安裝行車紀錄器
3. 保險公司補貼安裝設備, 降低詐欺風險
4. 多鏡頭+高解析度影像需求提升

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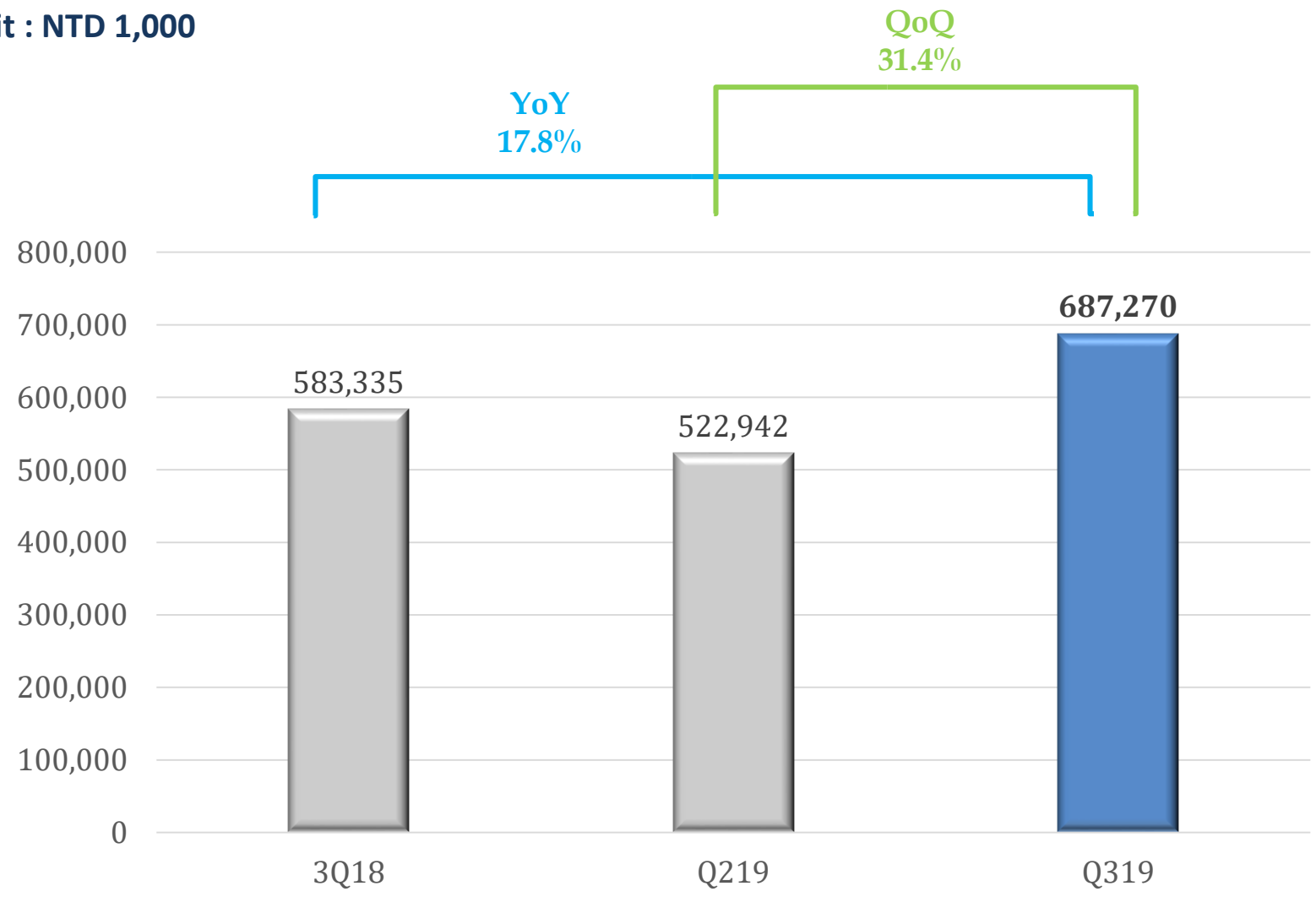
Consolidated Revenue

Unit : NTD 1,000



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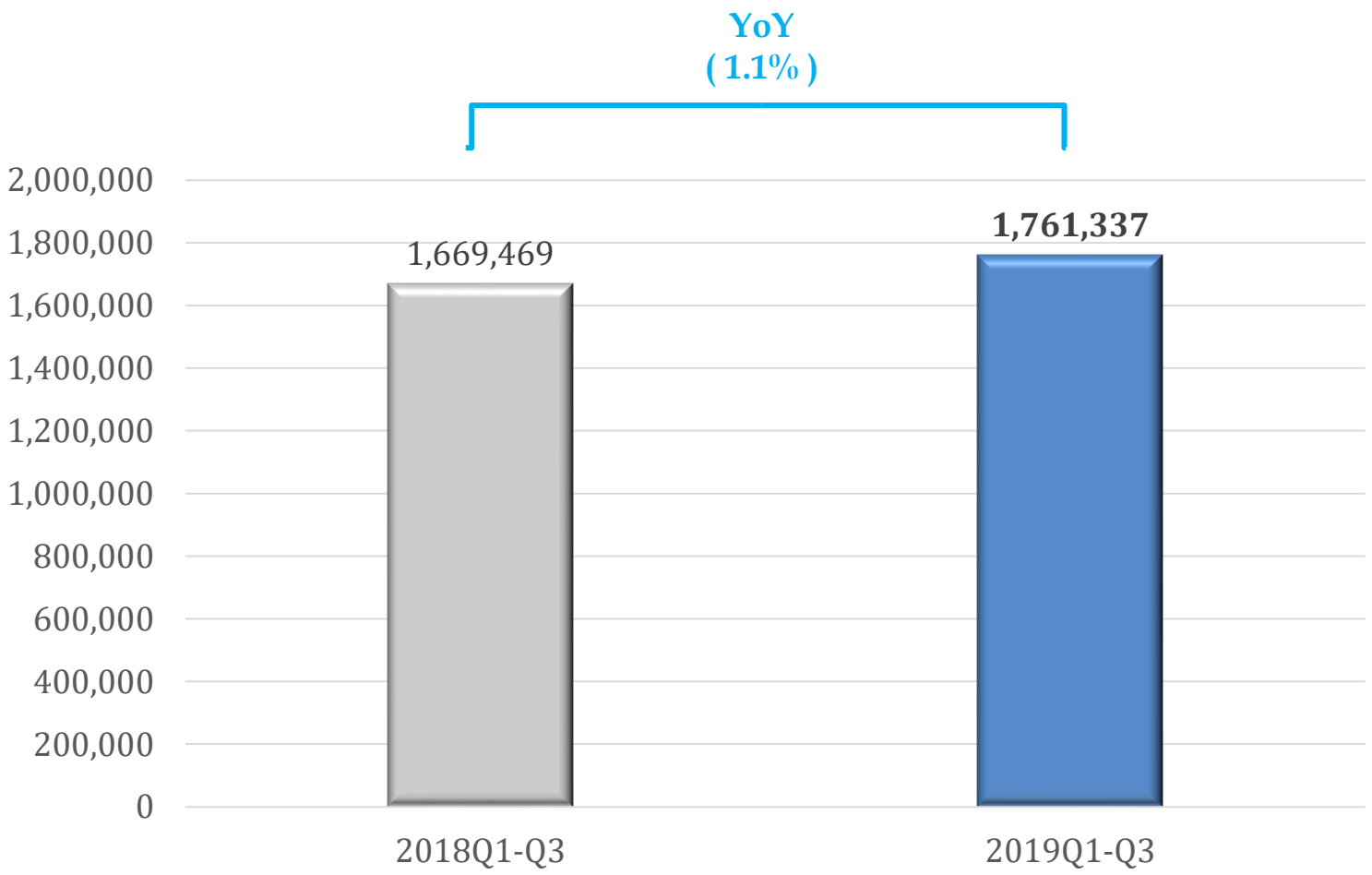
Consolidated Revenue

Unit : NTD 1,000



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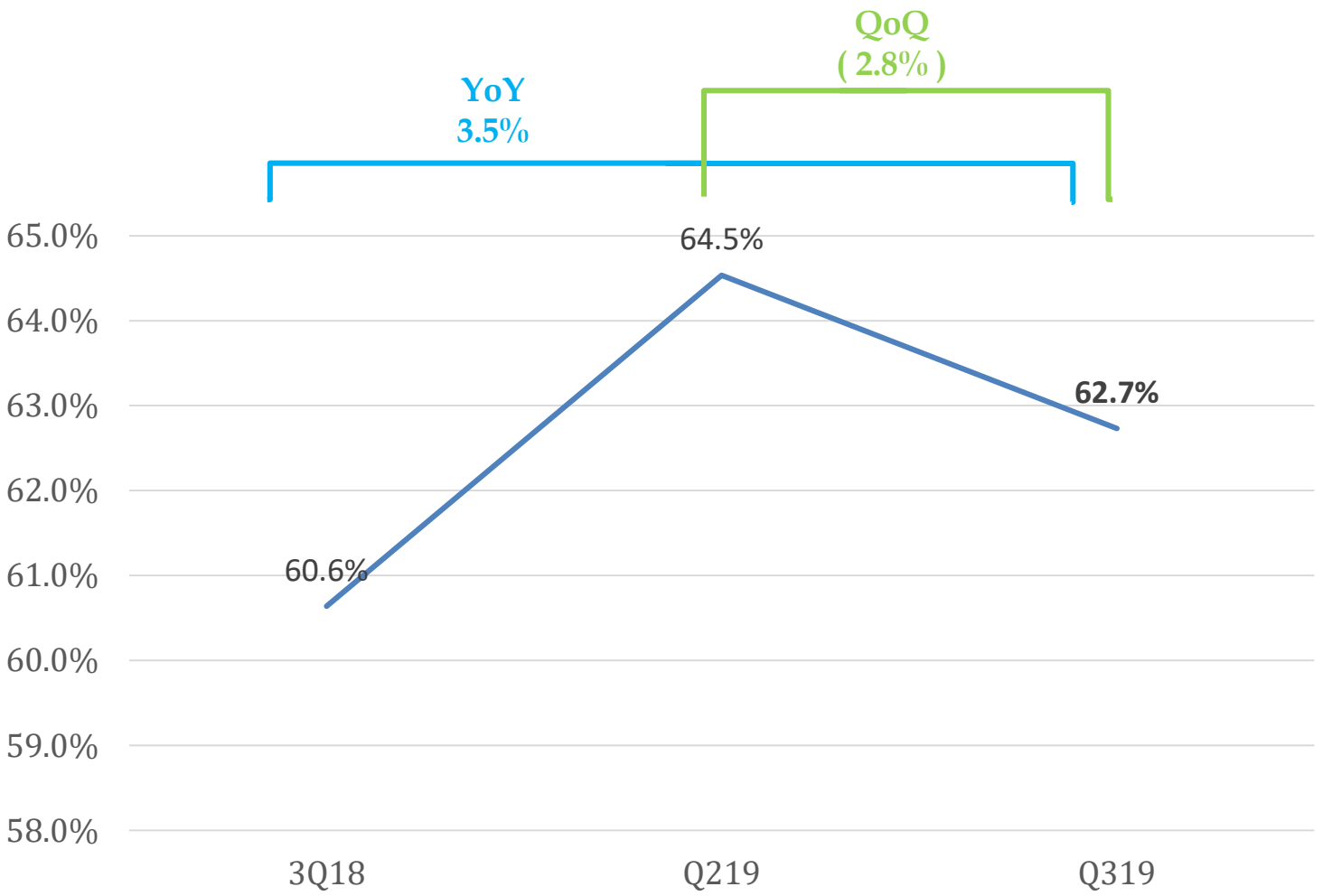
Consolidated Gross Margin



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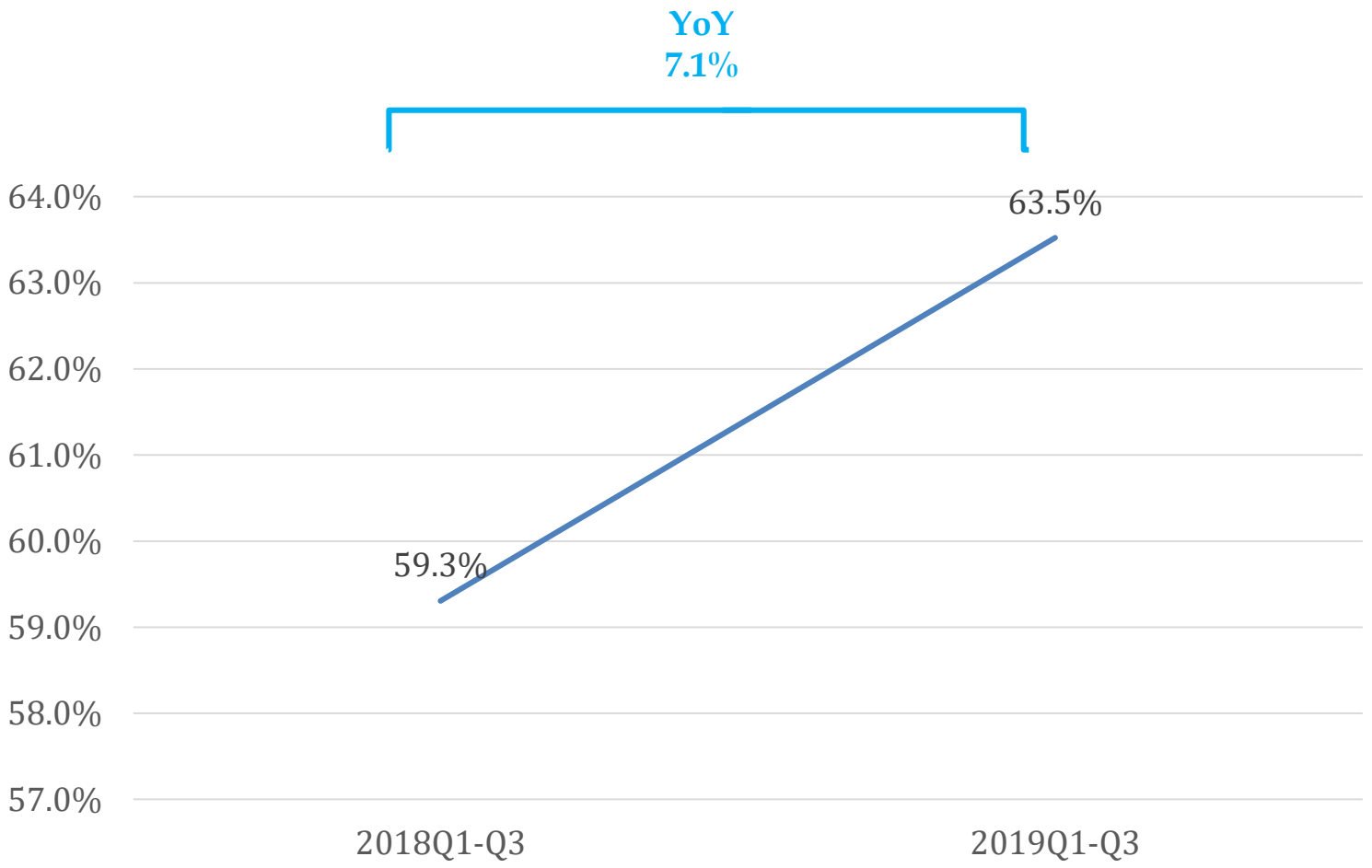
Consolidated Gross Margin



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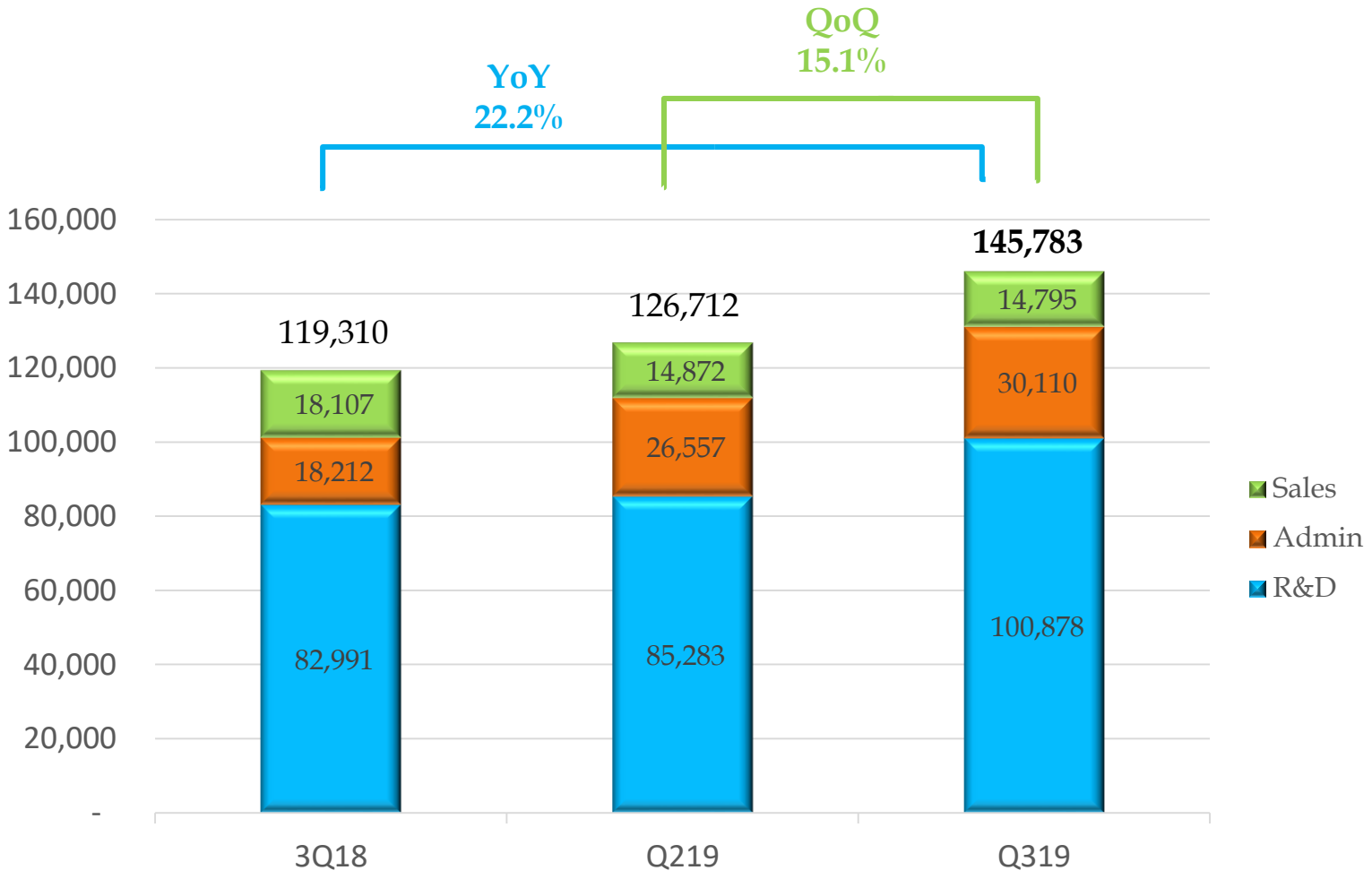
Consolidated Operating Expenses

Unit : NTD 1,000



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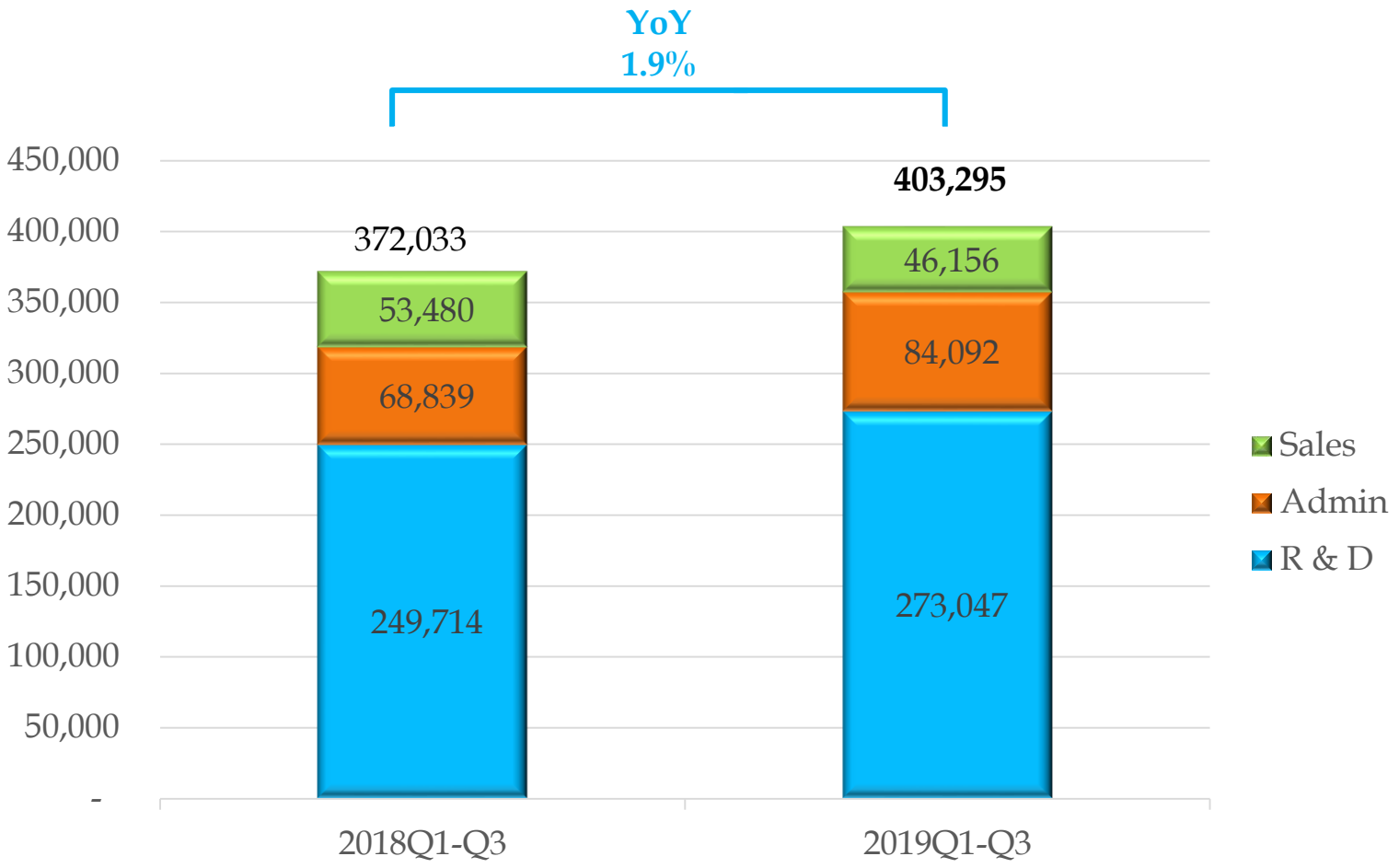
Consolidated Operating Expenses

Unit : NTD 1,000



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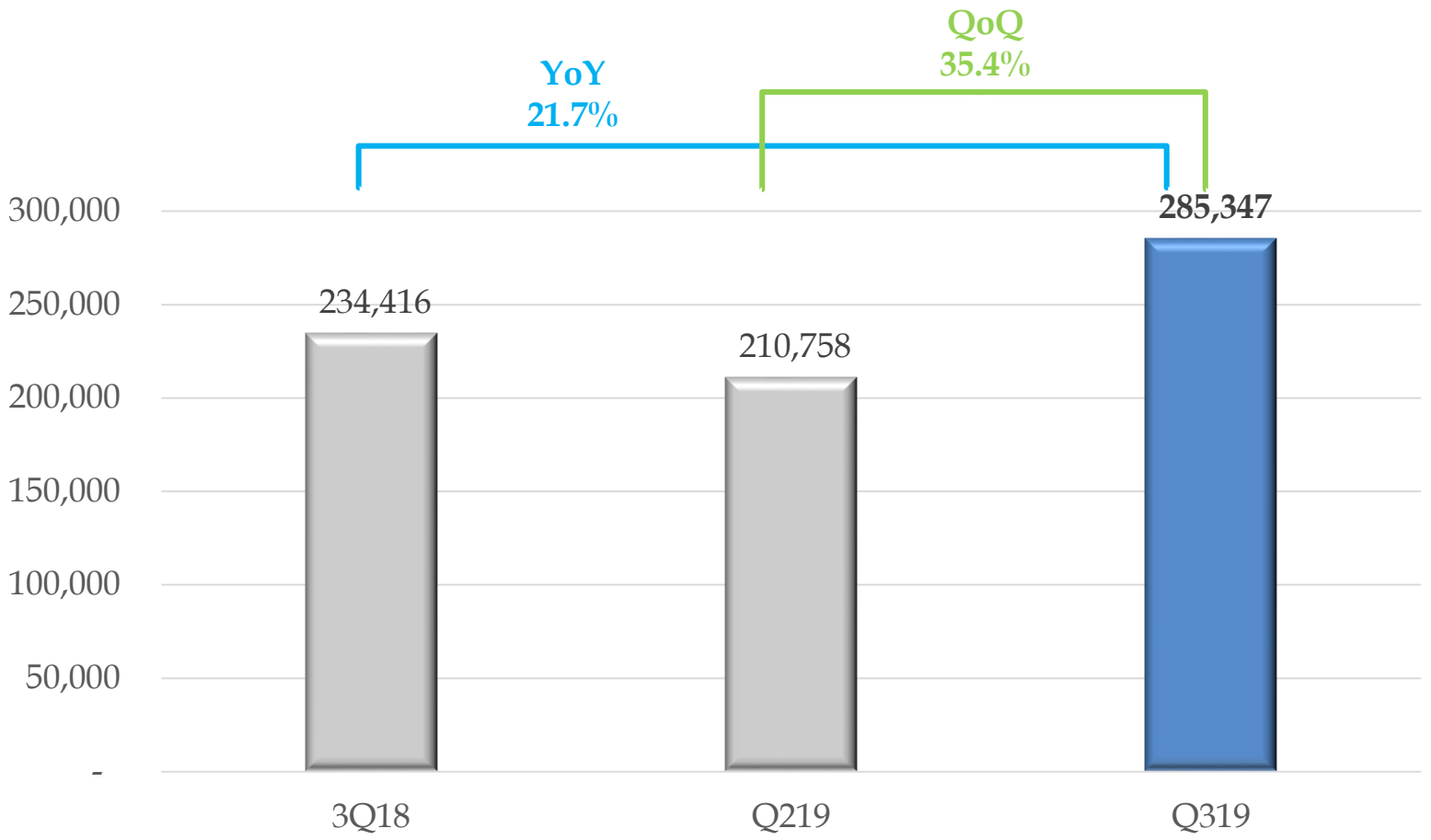
Consolidated Operating Income

Unit : NTD 1,000



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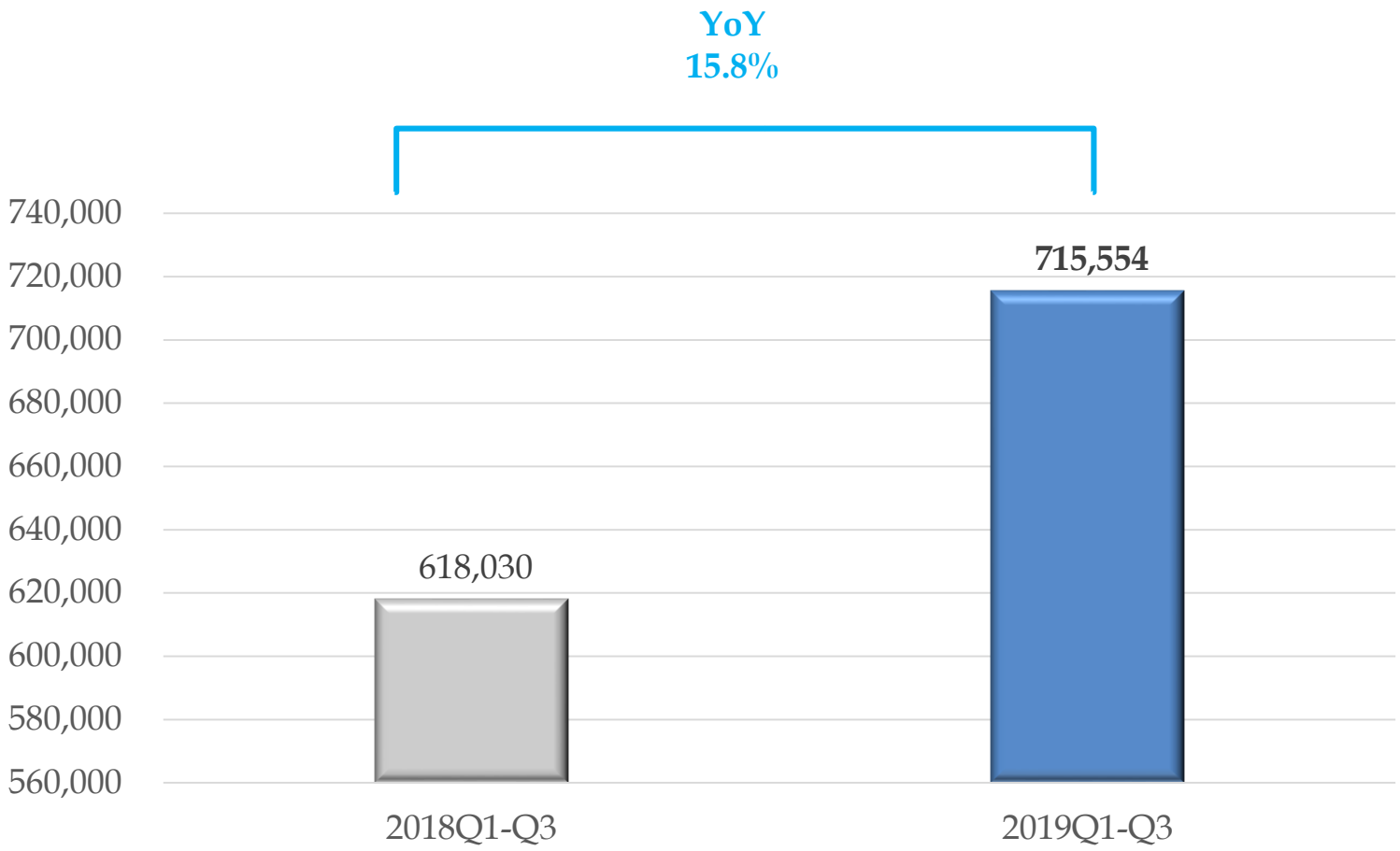
Consolidated Operating Income

Unit : NTD 1,000



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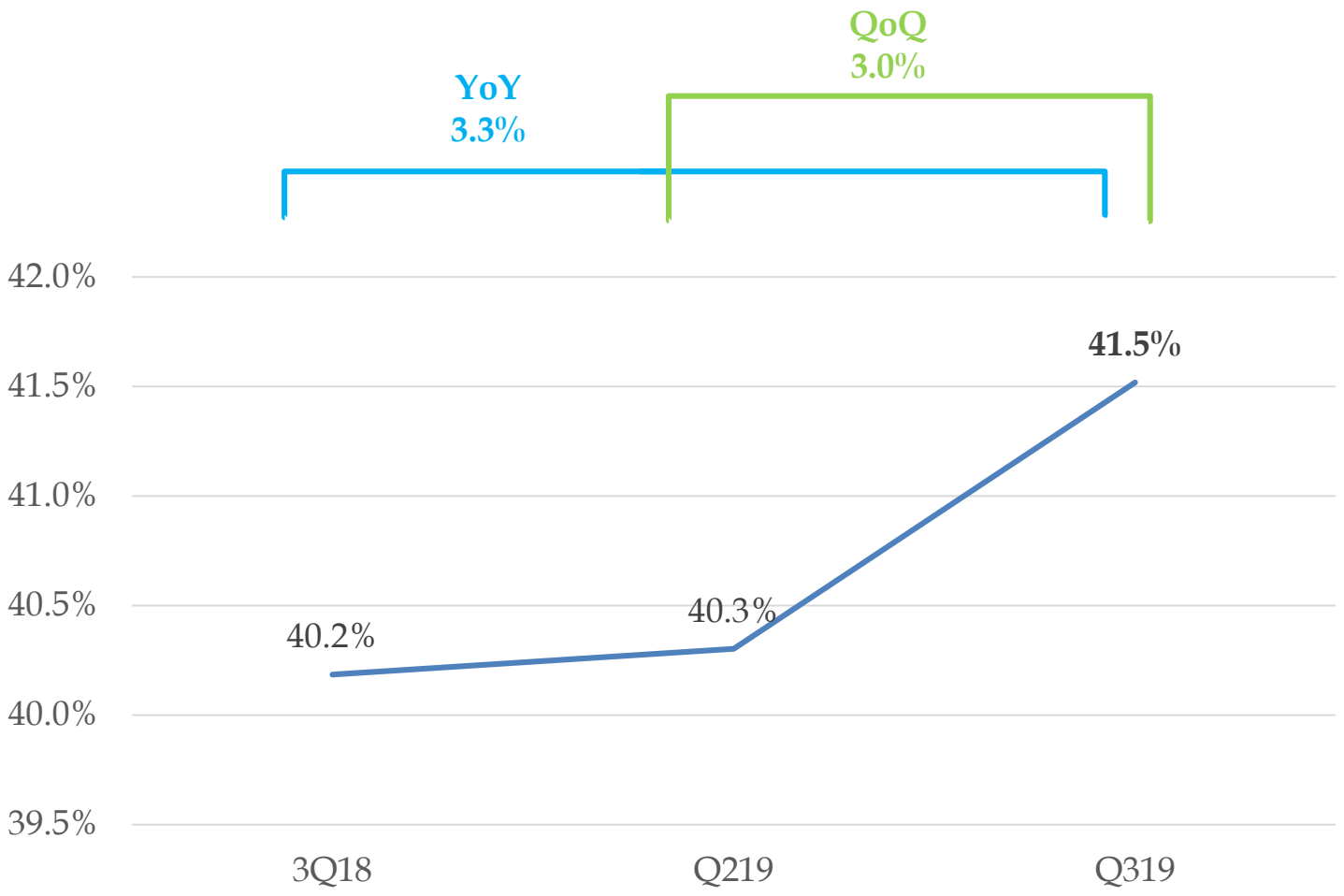
Consolidated Operating Margin



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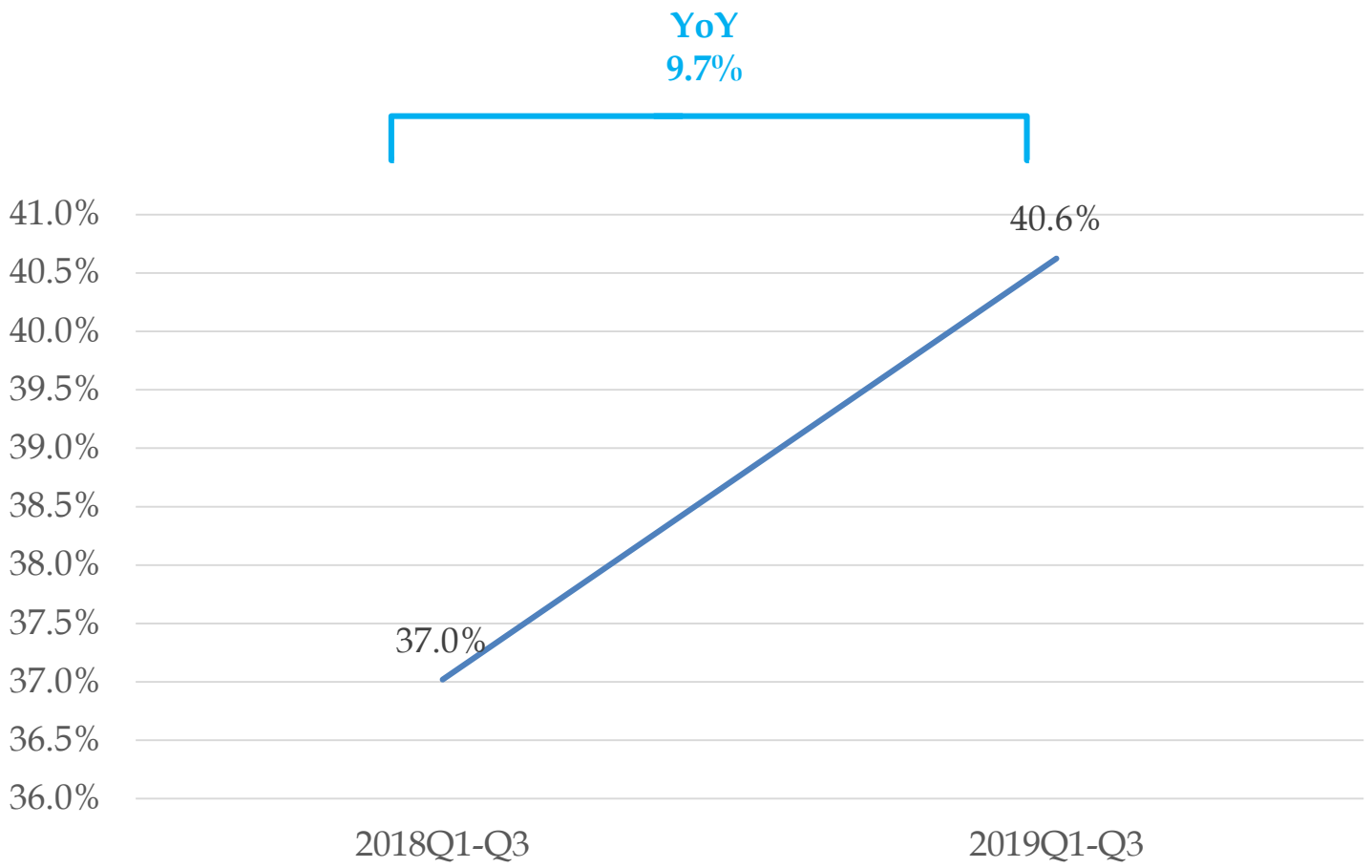
Consolidated Operating Margin



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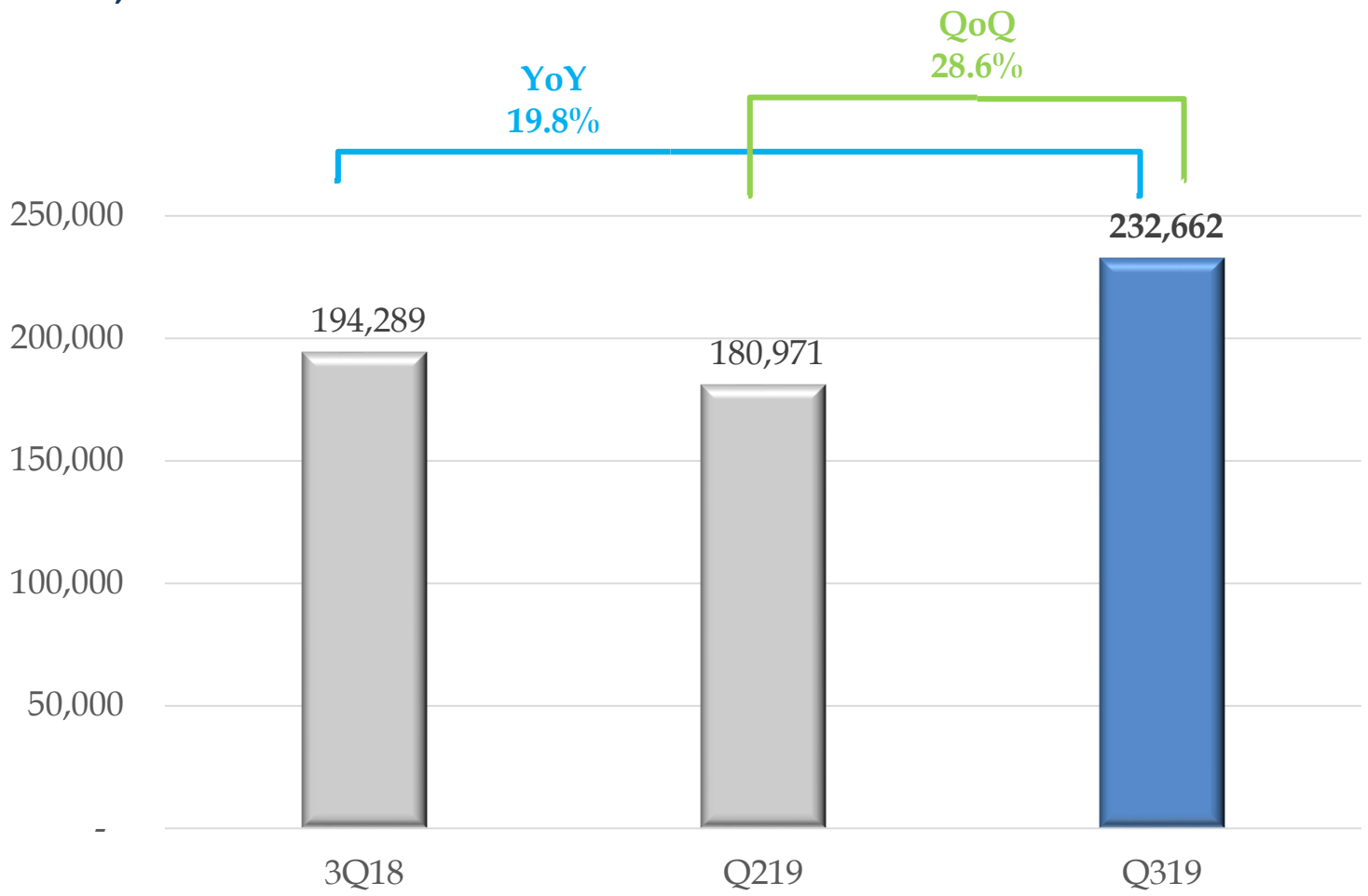
Consolidated Net Income

Unit : NTD 1,000



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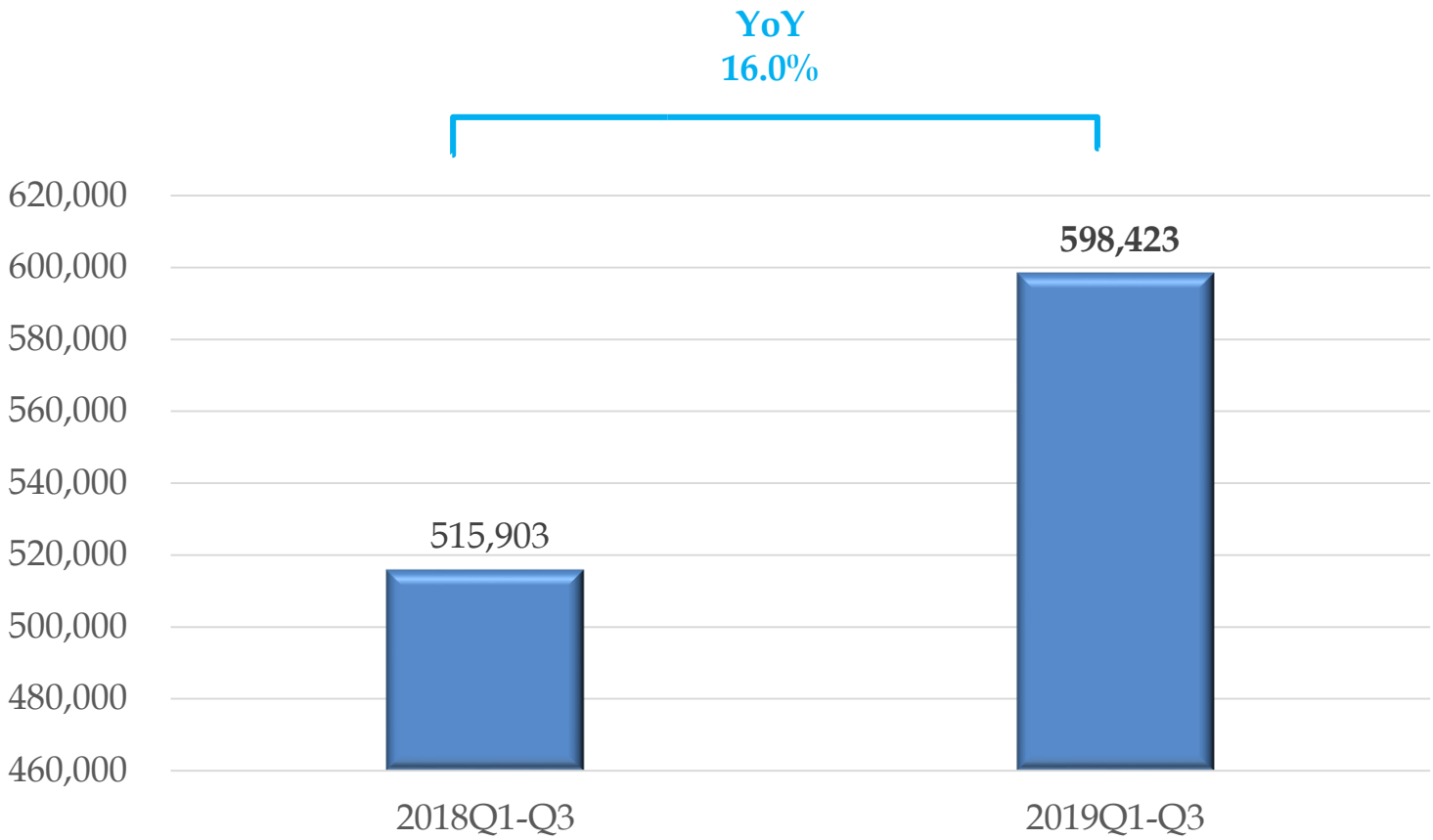
Consolidated Net Income

Unit : NTD 1,000



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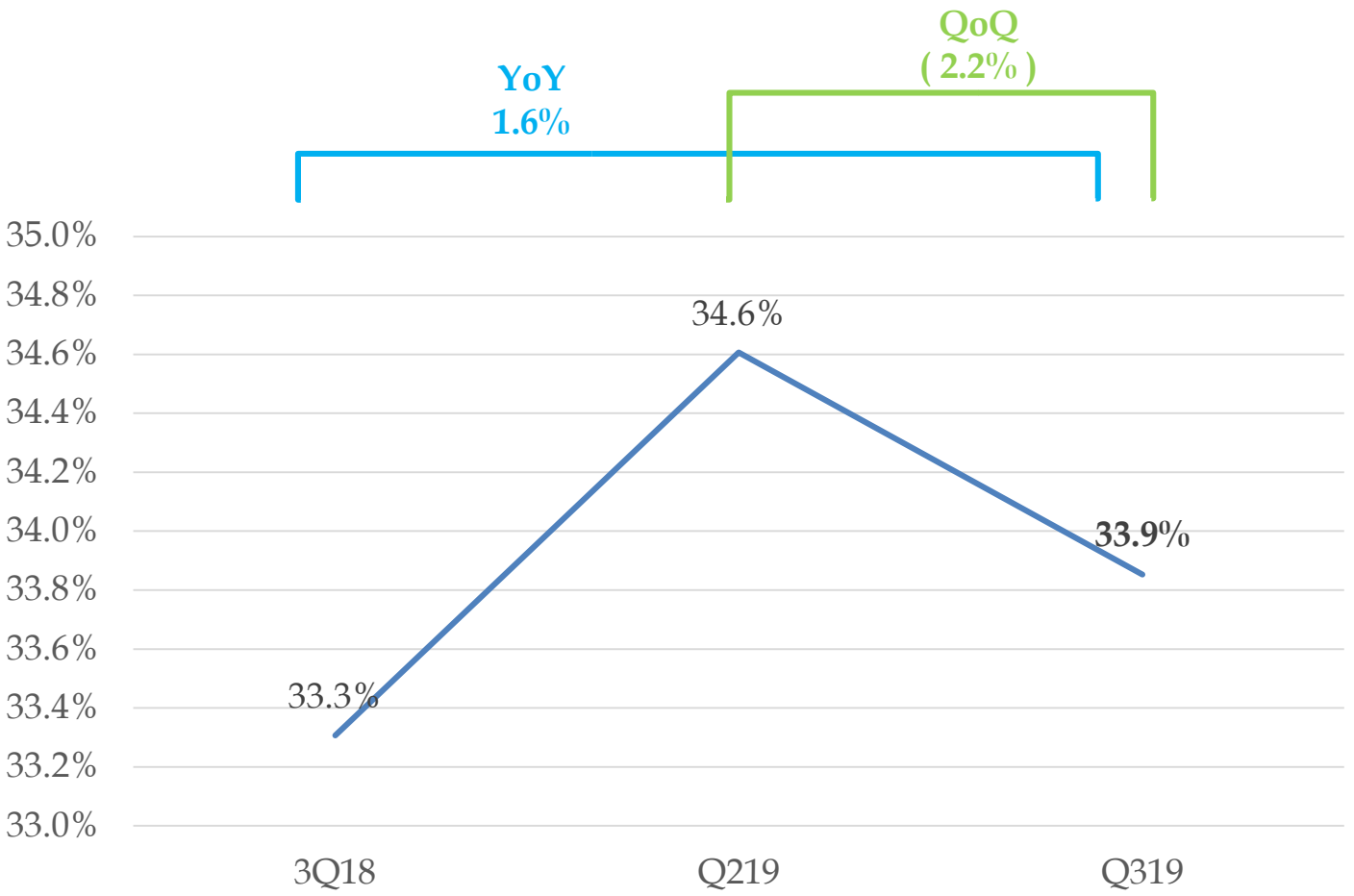
Consolidated Net Profit Margin



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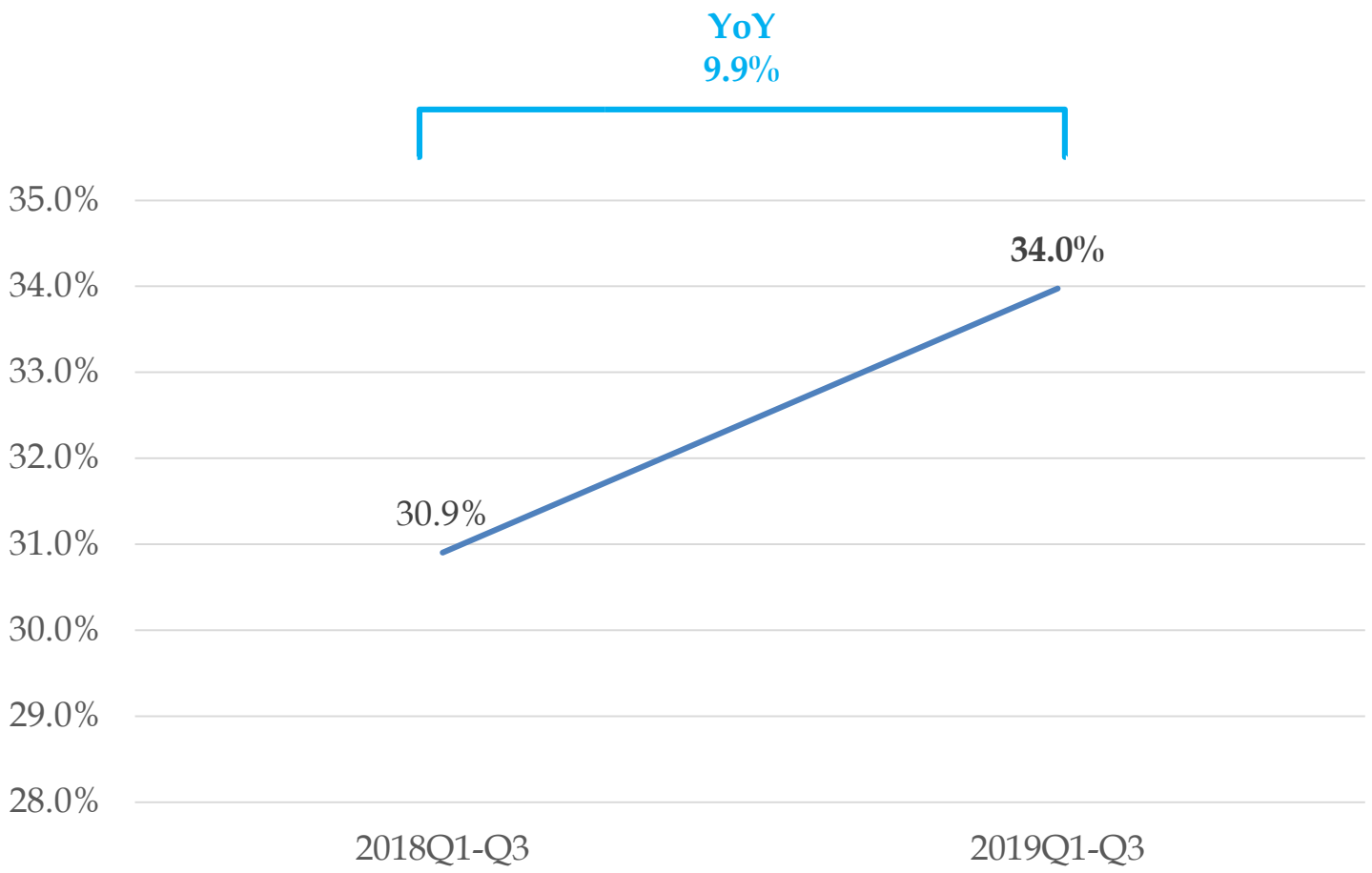
Consolidated Net Profit Margin



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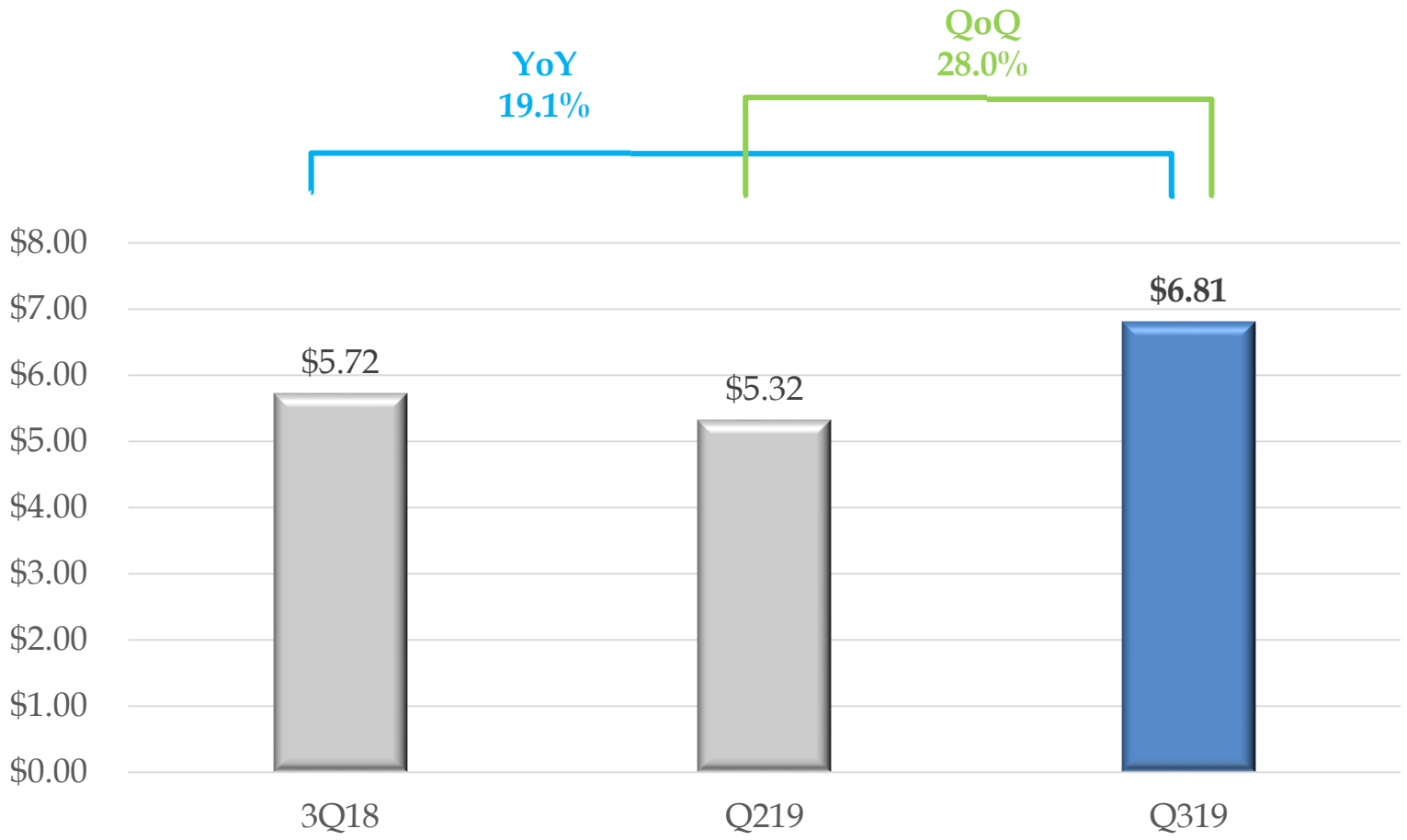
Consolidated Earning Per Share

Unit : NT$



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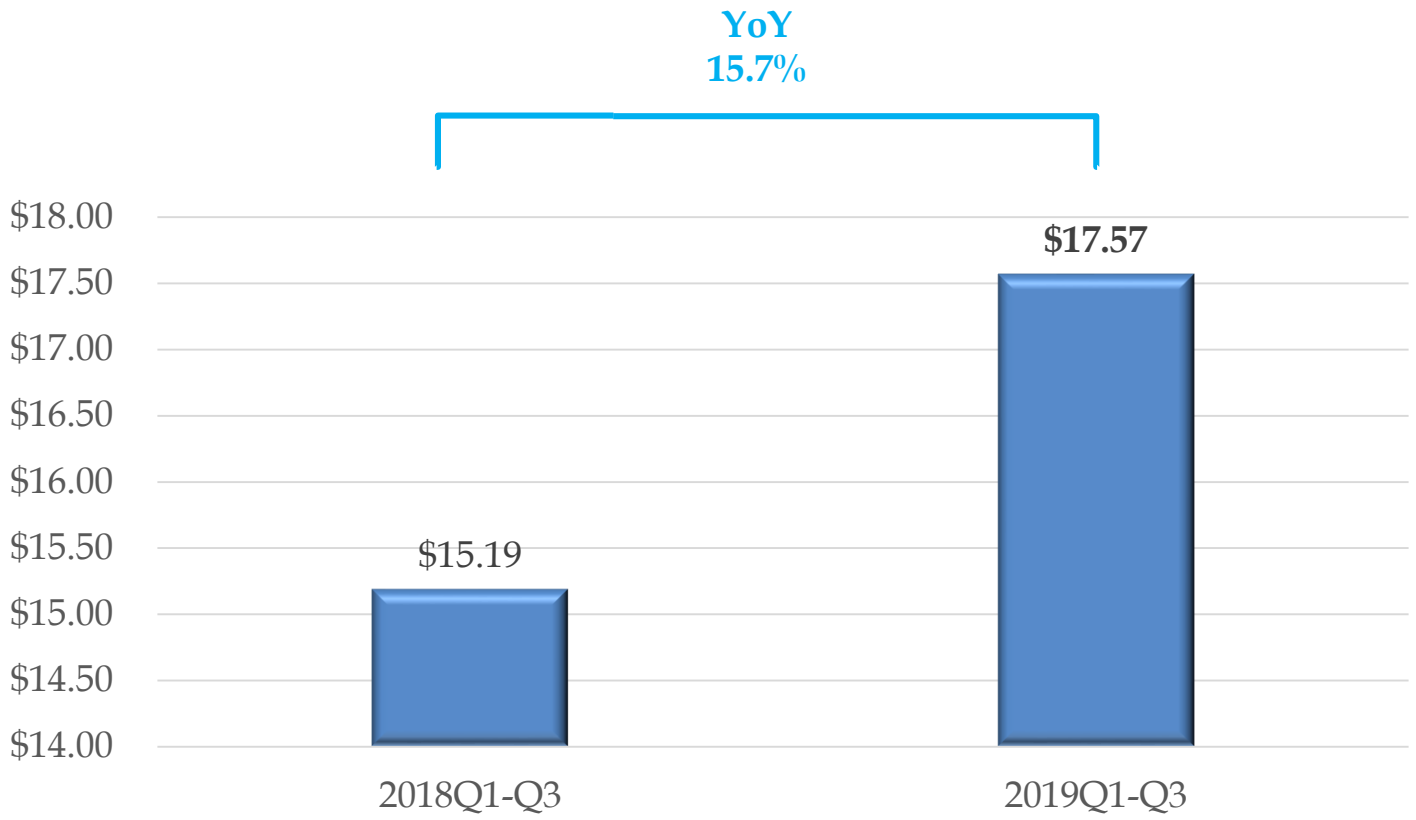
Consolidated Earning Per Share

Unit : NT$



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Dividend Policy

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Cash dividend (F)	2.29	3.00	4.00	5.00	5.50	7.00	8.00	12.00	15.00	18.00
Stock dividend (F)	2.00	1.42	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
Dividend form capital reserves (F)	0.30	0.60	0.22	0.20	1.00	0.00	0.00	0.00	0.00	0.00
Total Dividend	4.59	5.02	4.22	5.20	6.50	9.00	8.00	12.00	15.00	18.00
EPS	5.64	5.66	4.77	6.50	7.40	10.72	10.79	14.07	15.70	20.20

Earning distributions:

- Employee bonus can not be less than 8%
- Directors bonus no higher than 3%
- With respect to the earnings available for distribution plus the previously cumulative undistributed retained earnings, the Board of Directors may present a proposal to distribute to the Shareholders by way of dividends at the annual general meeting for approval. Having considered the operational, financial and tax factors, including the Company being in the growing stage during the business life cycle and the future expansion projects, any remaining profits may be distributed in the form of cash dividends and/or shares, and the cash dividends shall be no less than 10% of such remaining profits to be distributed.

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Thank you

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