Fiscal 2021 Financial Results Presentation
Fiscal Year Ended January 31, 2022
(38th Fiscal Year)

ACCESS CO., LTD.

March 2022

ACCESS CO., LTD.

Notes on Forward-Looking Statements

- Forward-looking statements contained in this document, including performance targets, are based on information available to the ACCESS group at the time of the publication of this document.

- Forward-looking statements are subject to uncertainties that could cause actual results or outcome to differ materially from those statements. Accordingly, it is not advised to make investments and other decisions based solely on the content of this document.

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1. Highlights of FY2021 Fiscal Year Ended January 2022 (38th Fiscal Year)

Highlights of FY2021 (1)

- Net sales increased by 31.1% year-on-year due to increased royalty income and orders received
- EBITDA improved by JPY 616 million year-on-year
- Impairment loss of JPY 210 million was reported due to the impairment of goodwill in NetRange, which was acquired in FY2019

(JPY Million)	FY2021	YoY
Net sales	9,853	+31.1%
Operating profit	(3,219)	- (YoY: -2,641)
EBITDA*	869	+243.4% (YoY: 253　+616)
Profit attributable to owners of parent	(3,049)	- (YoY: -2,537)

＊：EBITDA=Operating profit + Depreciation and Amortization + Amortization of Goodwill

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Reference: Non-consolidated results for FY2021

- Core businesses showed steady financial results, and net sales increased year-on-year
- Gain on investments in investment partnerships of JPY 502 million was reported as non-operating income
- Loss on valuation of investments in capital of subsidiaries and associates of JPY 1,654 million was reported as extraordinary loss*

(JPY Million)	FY2021	YoY
Net sales	5,920	+27.6%
Operating profit	(193)	- (YoY: -749)
Ordinary profit	360	- (YoY: -542)
Basic earnings	(1,292)	- (YoY: -680)

* : This loss arose from a valuation for accounting purposes, and the expense is a non-financial expense, so there is no impact on cash flows or consolidated financial results.

Highlights of FY2021 (2)

- Net sales increased in each segment, but both net sales and operating profit were below the initial plan
- Regarding cost of sales and selling, general and administrative expenses, depreciation for software and expenses associated with enhancement of personnel structure increased

Net sales by segment
(JPY Million)

■ Domestic Business ■ Overseas Business ■ Network Business

Operating profit

Operating profit・Segment profit
(JPY Million)

■ Planned

	FY2019 Result	FY2020 Result	FY2021 Plan	FY2021 Result
Total	9,422	7,516	11,900	9,853
Network Business	2,540	1,828		2,467
Overseas Business	998	430		499
Domestic Business	5,884	5,257		6,886

(2,046)

	FY2019 Result	FY2020 Result	FY2021 Plan	FY2021 Result
Operating profit	387	(2,641)	100	(3,219)
Network Business	643	(1,506)		106
Overseas Business	(171)	(587)		(561)
Domestic Business	(85)	(540)		(2,778)

(3,319)

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Highlights of FY2021 (3)

- EBITDA increased year-on-year
- Continued to invest in product development, particularly in the Network Business

■ Consolidated EBITDA (JPY Million)

FY2019	FY2020	FY2021
1,861	253	869
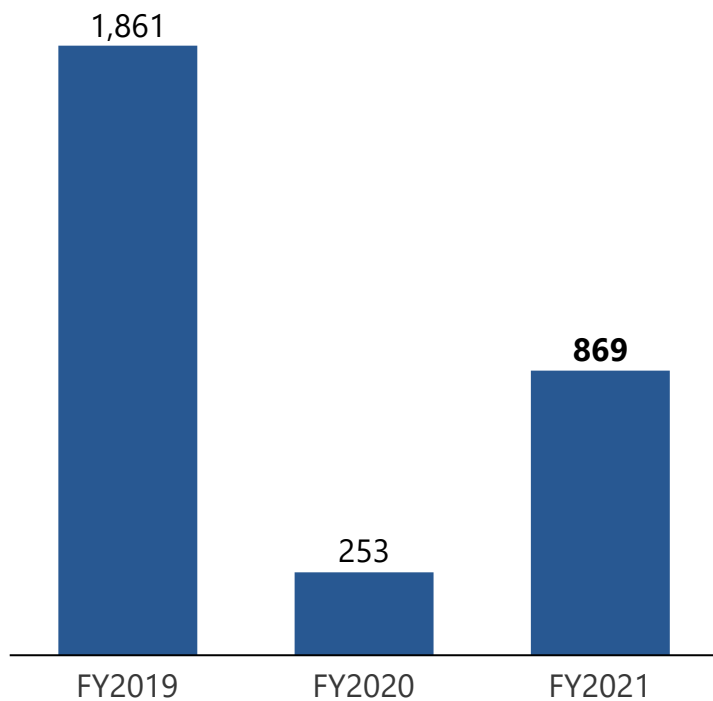
■ Investment in software development (JPY Million)

FY2019	FY2020	FY2021
3,576	3,024	2,487
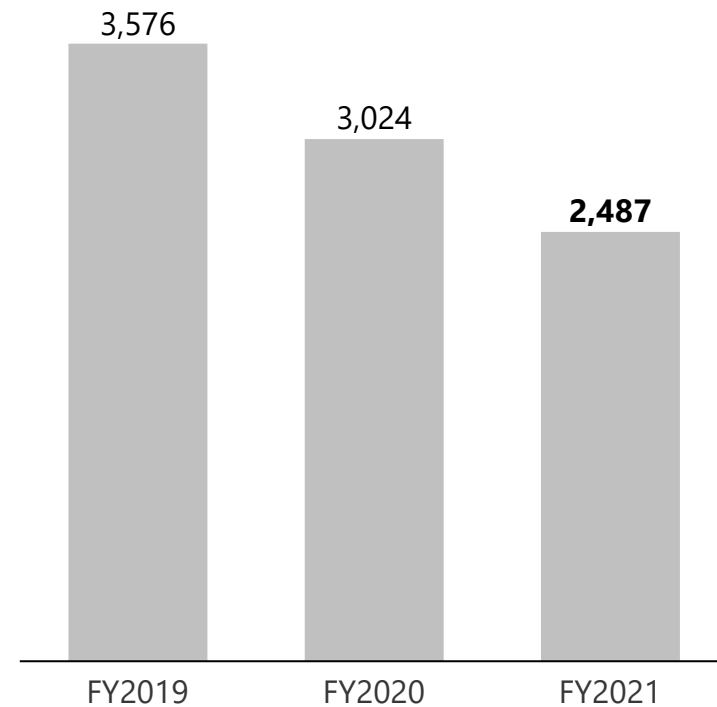
Highlights of FY2021 (4)

- Forgo dividend for FY2021, in light of consolidated financial results for the full year

Operating profit and profit attributable to owners of parent (JPY Million)

■ Operating profit   ▢ Profit attributable to owners of parent

■ Dividend per share (JPY)
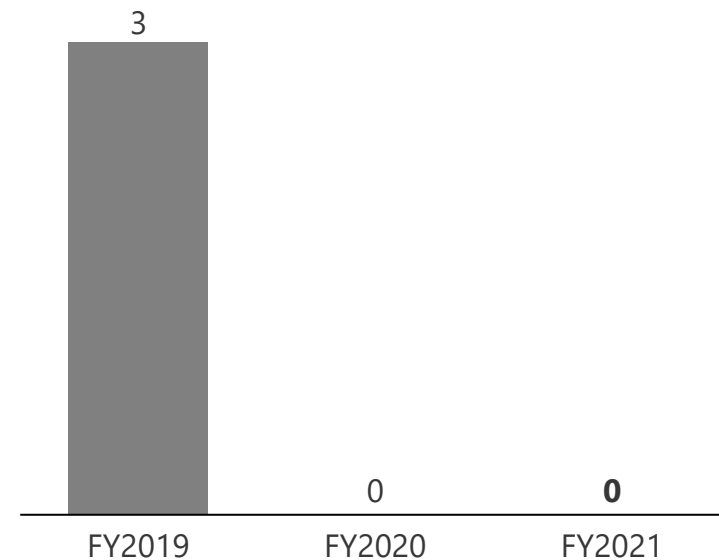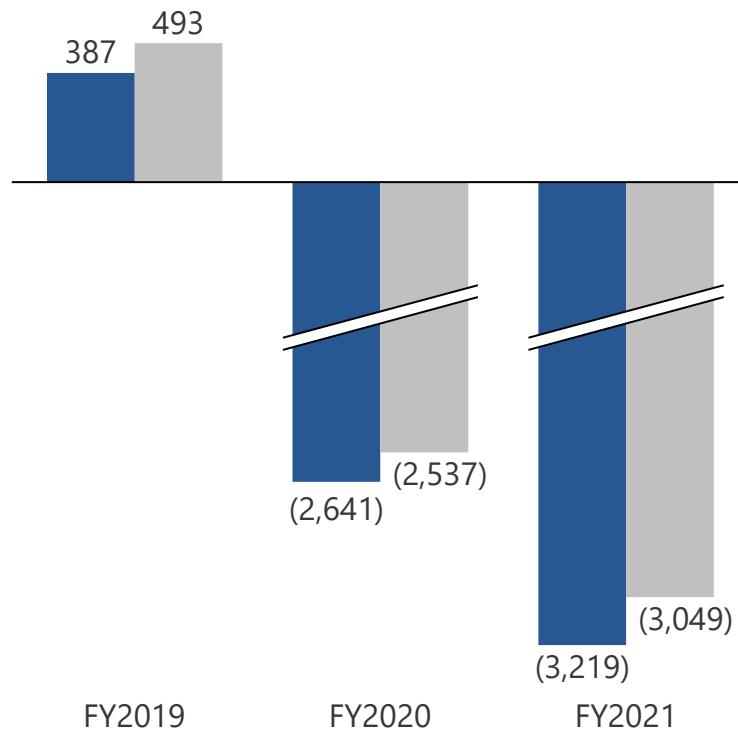
387   493

(2,641)   (2,537)

(3,219)   (3,049)

FY2019   FY2020   FY2021

3   0   **0**

FY2019   FY2020   FY2021

2. Highlights of Segment Results of FY2021
Fiscal Year Ended January 2022
(38th Fiscal Year)

Highlights of Segment Results of FY2021 (1)
(Domestic Business)

- Net sales and profits increased year-on-year as every business showed steady financial results
- In the Digital Publishing field, as part of efforts to improve profitability, a licensing agreement was concluded indefinitely granting the right to use some products

Net sales (JPY Million)

Legend: IoT | Web Platform | Digital Publishing | Other | Planned

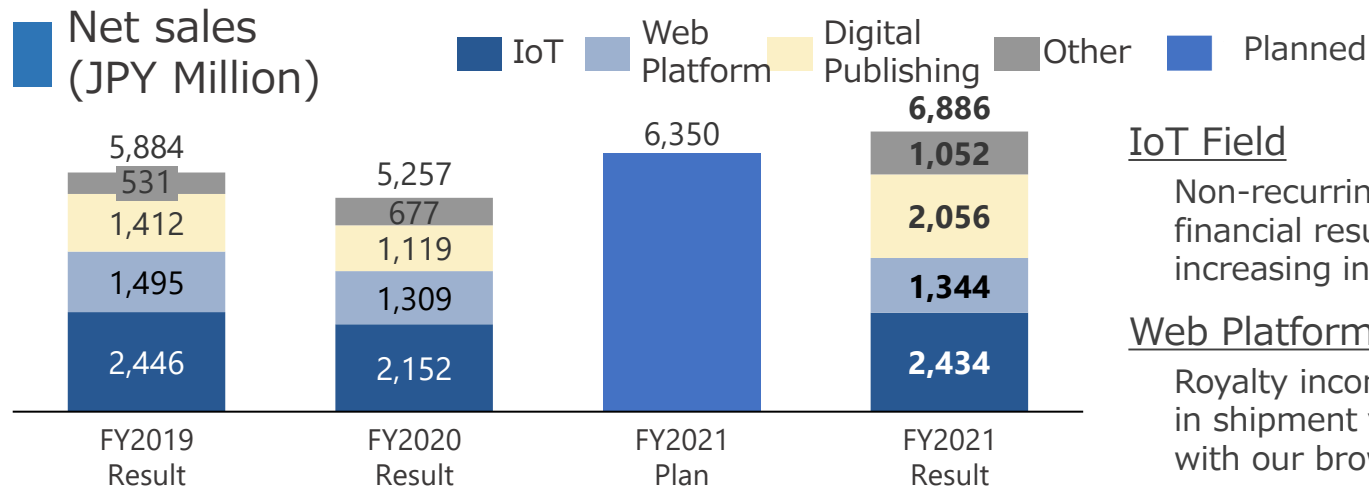|	FY2019 Result	FY2020 Result	FY2021 Plan	FY2021 Result
Total	5,884	5,257	6,350	6,886
Other	531	677		1,052
Digital Publishing	1,412	1,119		2,056
Web Platform	1,495	1,309		1,344
IoT	2,446	2,152		2,434

Segment profit (JPY Million)

FY2019 Result	FY2020 Result	FY2021 Plan	FY2021 Result
643	(540)	185	106

IoT Field
Non-recurring Engineering projects showed steady financial results, and orders increased with increasing inquiries regarding in-house products
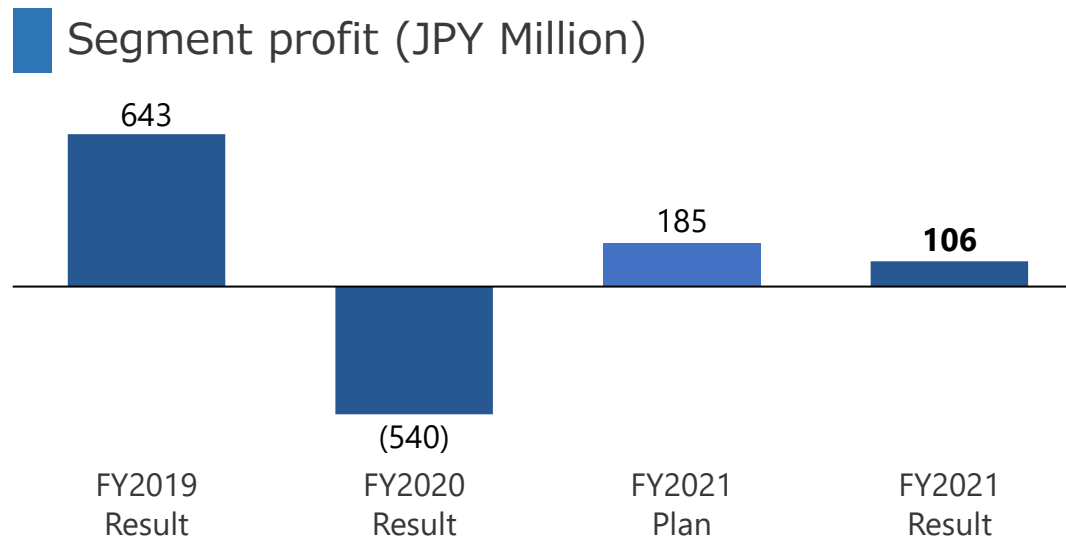
Web Platform Field
Royalty income increased with brisk growth in shipment volume of the products installed with our browsers

Digital Publishing Field
A licensing agreement was concluded indefinitely granting the right to use some products, and sales increased, but a deficit was recorded

Other
Services to mail-order businesses in a Taiwanese subsidiary showed steady financial results

Highlights of Segment Results of FY2021 (2)
(Overseas Business)

- Europe continued to record a deficit due to the delay in launching a full-fledged market in fields for in-vehicle infotainment
- Impairment loss of JPY 210 million was reported as extraordinary loss due to the impairment of goodwill in NetRange

Net sales (JPY Million)

Legend: Europe | China & South Korea | Planned

	FY2019 Result	FY2020 Result	FY2021 Plan	FY2021 Result
Total	998	430	1,150	499
China & South Korea	261	195		210
Europe	737	235		288

Segment profit (JPY Million)

FY2019 Result	FY2020 Result	FY2021 Plan	FY2021 Result
(85)	(587)	5	(561)
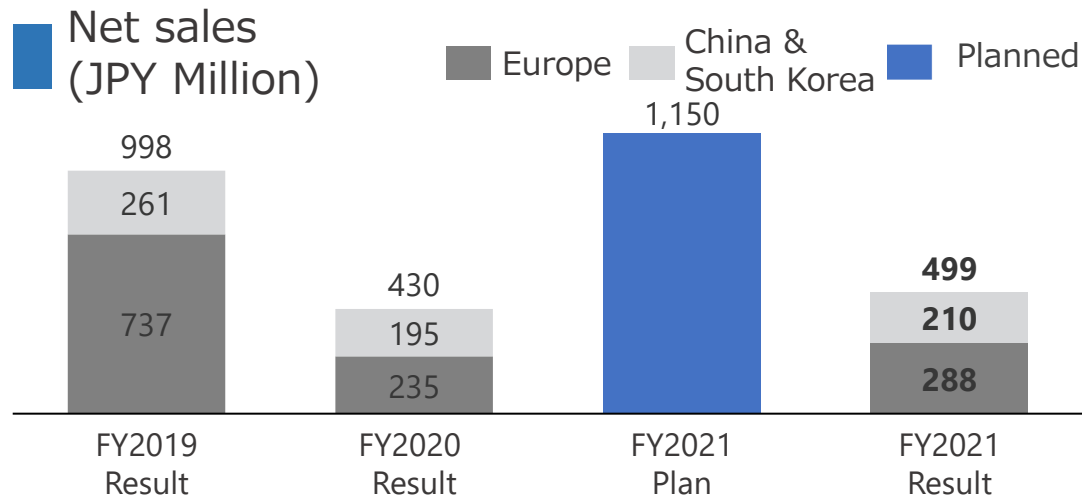
Europe

Loss expanded year-on-year due to the delay in launching a full-fledged market in fields for in-vehicle infotainment

China & South Korea

Royalty income increased with brisk growth in shipment volume of the products installed with our browsers

Highlights of Segment Results of FY2021 (3)
(Network Business)

- Net sales increased due to increased orders, but were below the initial plan
- Loss expanded year-on-year caused by increased personnel expenses and amortization of software
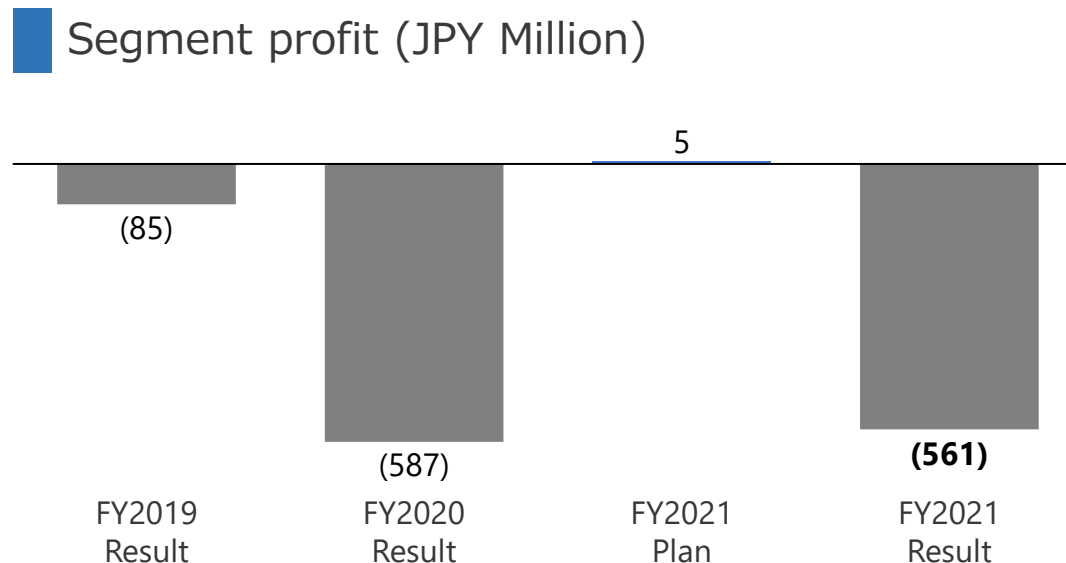
■ Net sales (JPY Million)　　■ Planned

FY2019 Result	FY2020 Result	FY2021 Plan	FY2021 Result
2,540	1,828	4,400	2,467

■ Segment profit (JPY Million)

FY2019 Result	FY2020 Result	FY2021 Plan	FY2021 Result
(171)	(1,506)	(90)	(2,778)
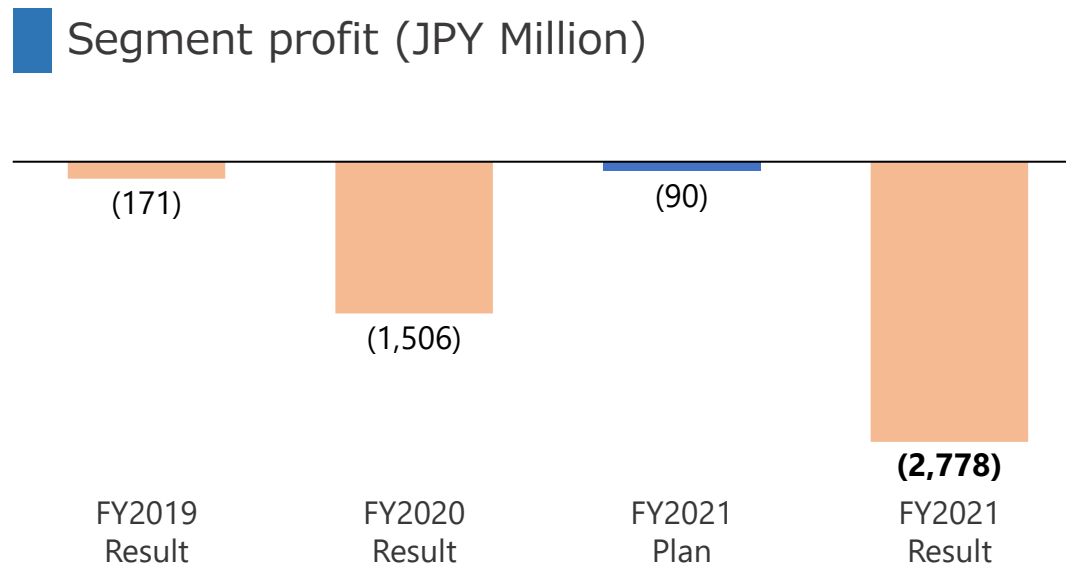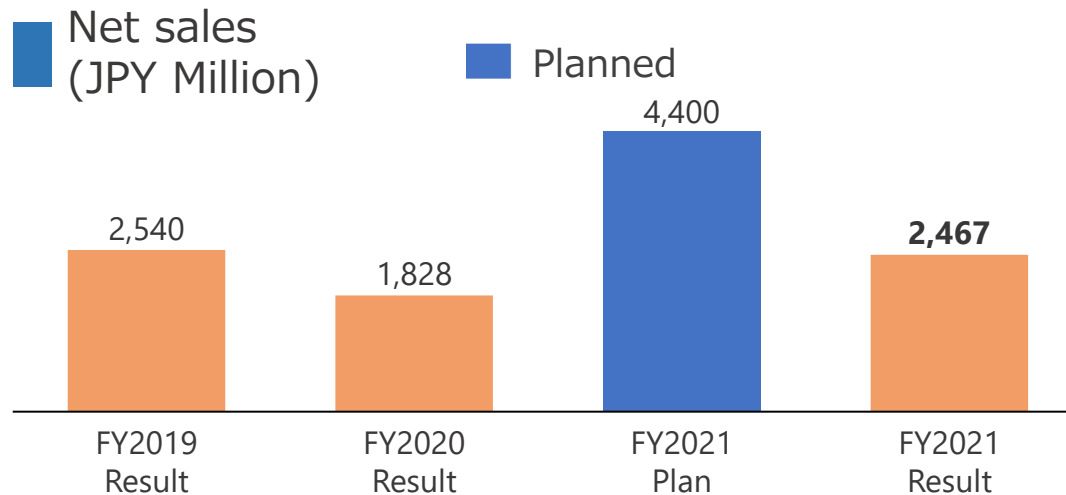
Segment as a whole

Project inquiries and orders steadily increased, and net sales increased by more than 30% year-on-year

However, the amount of the initial size and amount of orders received tended to be smaller than anticipated, and in response, efforts were made to increase sales by expanding sales channels and enhancing the customer support system, but the effects were limited

While focusing on wining projects from Tier 2/3 telecommunication service providers, aim to continue winning projects for large-scale licensing to Tier 1 telecommunication service providers and major service providers after selecting business feasibility and reliability

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3. Medium-Term Targets

Current Business Development

- Develop diverse products and services by using wide-ranging technical ability that can adapt from planning to development and from hardware to backend, while placing the Embedded Browser business that is our original business.

Domestic Business Segment

IoT Solutions

◆ Linkit®
POWERGs™

Embedded Browser

NetFront® Browser

Digital Publishing Platform

dp+ publus®

Overseas Mail-order Platform

CROS
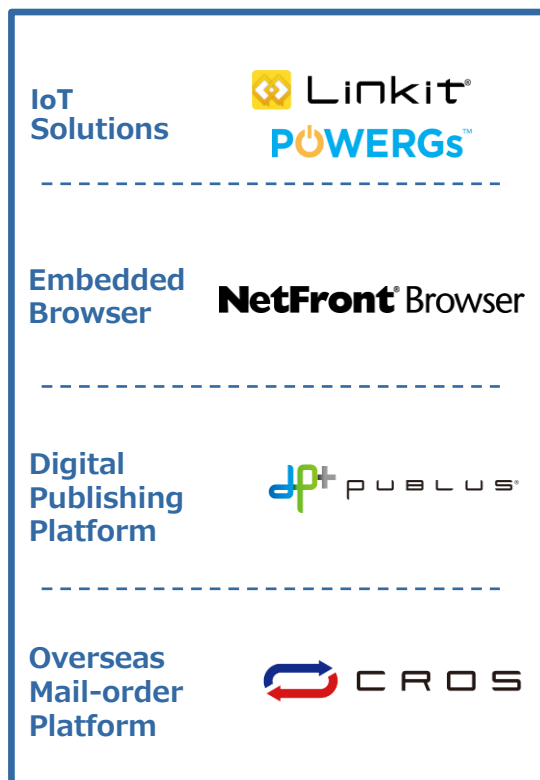
Overseas Business Segment

Embedded Browser

NetFront® Browser

Multimedia Content Distribution Platform

ACCESS TWINE™4CAR

TV / In-vehicle App-Store

netrange
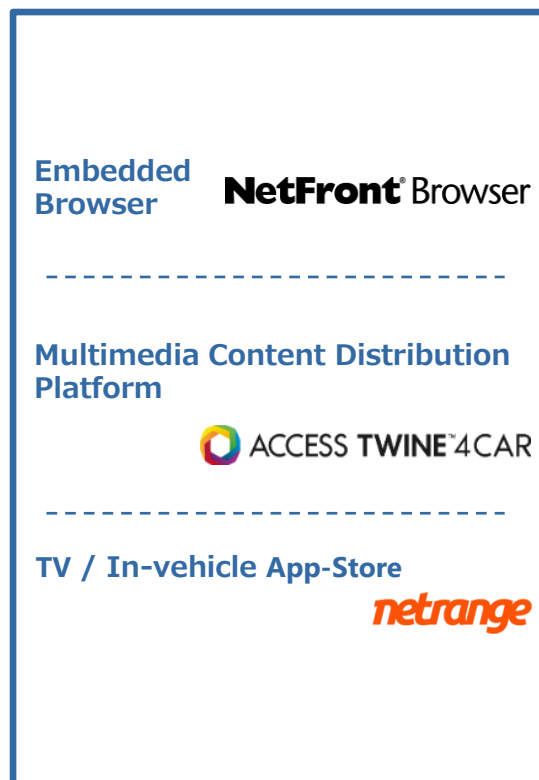
Network Business Segment

Protocol Software for Network Devices

ZebOS™

Whitebox Solutions

OcNOS™

DANOS
Vyatta edition

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Changes business segments

- Change business segments from FY2022 (39th fiscal year) for future growth
- Recategorize as IoT Business, Web Platform Business, and Network Business

Current Categories

Domestic Business

IoT Solutions — Linkit® POWERGs™

Embedded Browser — NetFront® Browser

Digital Publishing Platform — JP+ PUBLUS®

Overseas Mail-order Platform — CROS

Overseas Business

Embedded Browser — NetFront® Browser

Multimedia Content Distribution Platform — ACCESS TWINE™4CAR

TV / In-vehicle App-Store — netrange

Network Business

Protocol Software For Network Devices — ZebOS™

Whitebox Solutions — OcNOS™ DANOS Vyatta edition

Categories After Change

IoT Business
✓ Cut out embedded browser

IoT Solutions — Linkit® POWERGs™

Digital Publishing Platform — JP+ PUBLUS®

Overseas Mail-order Platform — CROS
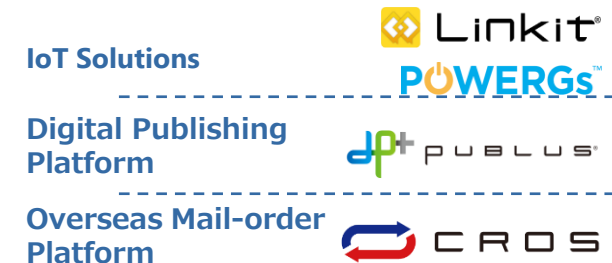
Web Platform Business
✓ Integrated management of domestic and overseas web platforms

Embedded Browser — NetFront® Browser

Multimedia Content Distribution Platform — ACCESS TWINE™4CAR

TV / In-vehicle App-Store — netrange

Network Business
✓ No change

Protocol Software For Network Devices — ZebOS™

Whitebox Solutions — OcNOS™ DANOS Vyatta edition

Review of Consolidated Financial Results

- Recognize that consolidated financial results for FY2021 were impacted by the global proliferation of COVID-19 in FY2020, delays in the launch of the whitebox market and the in-vehicle content distribution market, and the deterioration of profitability in the Digital Publishing field
- Continue investing in product development focusing on the Network Business, considering that OcNOS order numbers and amounts (including multiyear contracts) have nearly doubled year-on-year and that customers have highly praised reductions in capital expenditures and operating costs

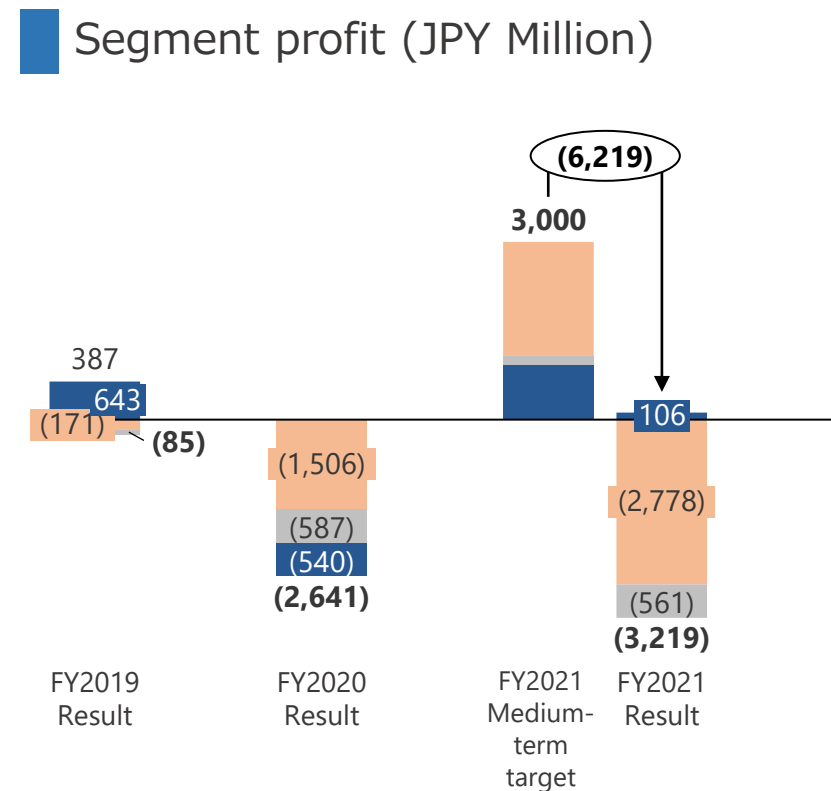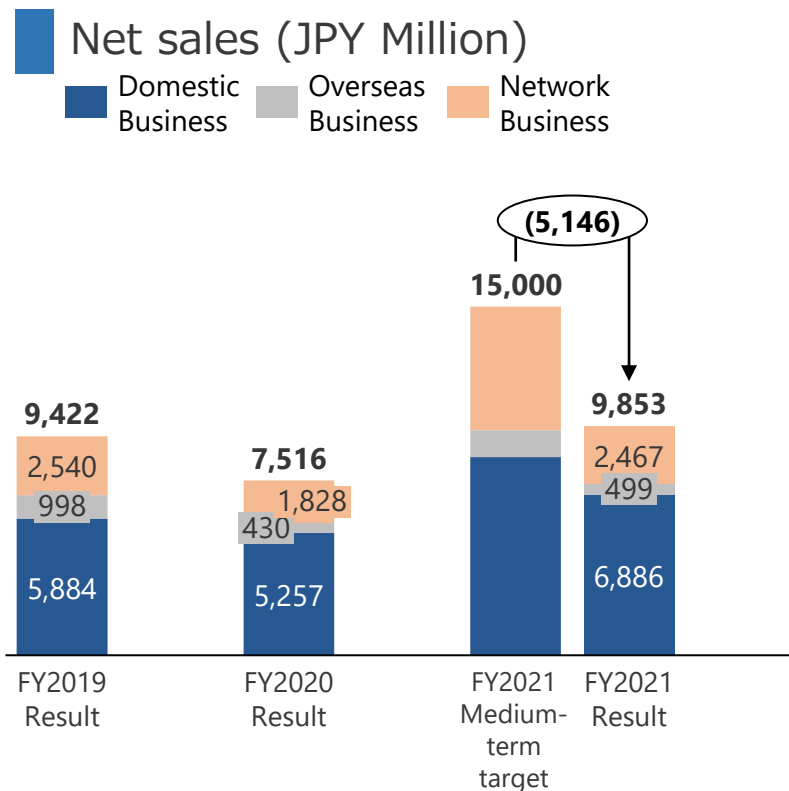**Net sales (JPY Million)**

Domestic Business | Overseas Business | Network Business

	FY2019 Result	FY2020 Result	FY2021 Medium-term target	FY2021 Result
Total	**9,422**	**7,516**	**15,000**	**(5,146)** → **9,853**
Network Business	2,540	1,828		2,467
Overseas Business	998	430		499
Domestic Business	5,884	5,257		6,886

Segment profit (JPY Million)

	FY2019 Result	FY2020 Result	FY2021 Medium-term target	FY2021 Result
Total	387 **(85)**	**(2,641)**	3,000 **(6,219)**	**(3,219)**
Domestic Business	643	(540)		106
Overseas Business	(171)	(587)		(561)
Network Business		(1,506)		(2,778)

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Business Plan

	FY2022 plan	Current understanding based on FY2021
IoT Business	・**Grow by focusing resources on non-recurring engineering**, which is not only our business base, but also a source for the creation of new products/services ・In parallel, try to **build up profit with in-house products** ・In the **Digital Publishing field**, review the scale of investment and work to **improve profitability**	・**Net sales in non-recurring engineering overall grew by more than 30%** year-on-year. Handled a wide range of areas including servers, Web-frontend, project management, data analytics, machine learning, smart devices, security, and UI/UX design ・In the **Digital Publishing field**, despite having an advantage in browser-based viewers, competition has increased among system vendors including the Company and is taking on the appearance of warfare by attrition year by year, which has **deteriorated profitability**
Web Platform Business	・**Increase** global **share in fields already entered (TV, in-vehicle)** ・**Regaining profits in Europe is an urgent task** 　✓TV: **Use track record in other locations** to develop business 　✓In-vehicle: **Strengthen outsourced projects and browser sales to automotive companies** that currently are our main customers in Europe ・Monetize in new fields, such as in-vehicle multimedia content distribution and ad distribution	・**Delays in turning a profit** have arisen due to **delays in launch of field for IVI** ・Meanwhile, effects are steadily being seen in the **in-vehicle** field, such as **sales at major global manufacturers and new EV and other customers** from next year, and **contracts won with global TV chipset vendors**
Network Business	・Focus on **winning projects from Tier 2/3 telecommunication service providers** ・Aim to continue winning projects for large-scale licensing to Tier 1 telecommunication service providers and major service providers after selecting business feasibility and reliability ・Reductions in capital expenditures and operating costs have been highly praised by customers. Continue investing in product development in order to increase sales by expanding sales channels and extending product functions	・Recognize that the market is steadily being launched. For example, **OcNOS was adopted by more than 65 new customers** in 2021, and **both order numbers and total amount** (including multiyear contracts) **nearly doubled year-on-year** ・However, **adoption is taking longer** and **the amount of initial orders have been small** due to Tier 1 telecommunication service providers in particular being more conservative than anticipated toward adopting new technology

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Medium-Term Targets

- With the growth of the Network Business, expect consolidated operating profit to return to profitability in FY2023
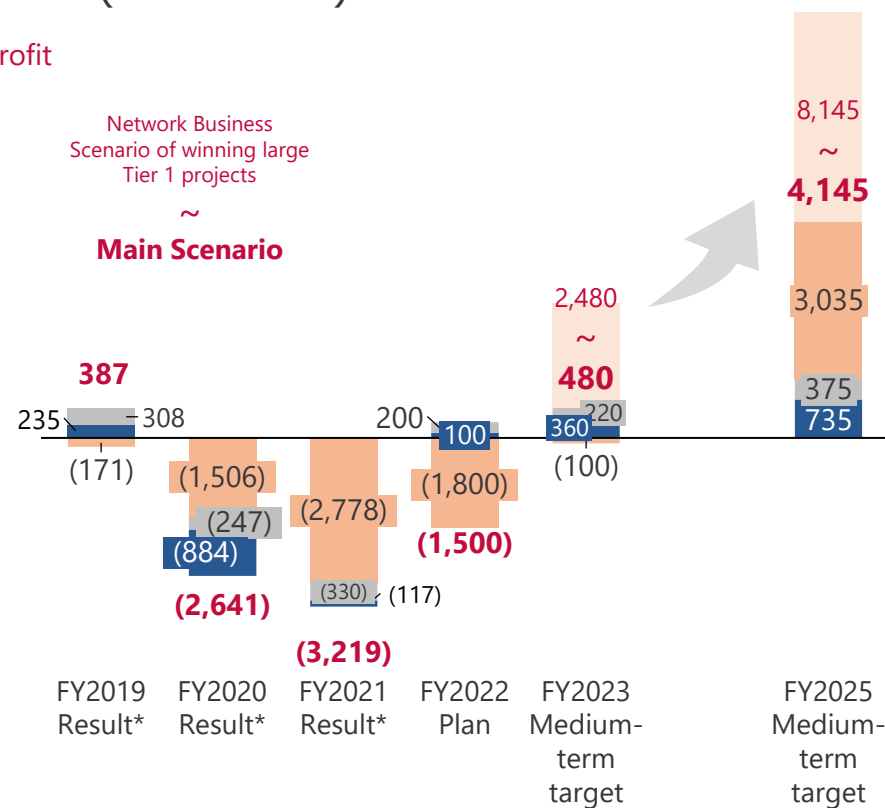- Recognize that the Network Business has plenty of business potential, with the whitebox market continuing to grow, though later than initially anticipated
- Meanwhile, watch market trends, as the whitebox market itself is a new market, and the speed and scale of growth are uncertain
  - ➢ Further growth when large-scale projects are won from Tier 1 telecommunication service providers

Net sales by segment (JPY Million)

IoT Business — Web Platform Business — Network Business — Operating profit

Network Business Scenario of winning large Tier 1 projects

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Main Scenario

	FY2019 Result*	FY2020 Result*	FY2021 Result*	FY2022 Plan	FY2023 Medium-term target	FY2025 Medium-term target
Total	9,422	7,516	9,853	11,800	15,850 ~ 13,850	24,000 ~ 20,000
Network Business	2,540	1,828	2,467	3,500	4,900	9,000
Web Platform Business	2,493	1,740	1,844	2,360	2,500	2,900
IoT Business	4,388	3,947	5,541	5,940	6,450	8,100

Operating profit・Segment profit (JPY Million)

Network Business Scenario of winning large Tier 1 projects

~

Main Scenario

387 (FY2019): 235, 308, (171)
FY2020: (1,506), (247), (884), (2,641)
FY2021: (2,778), (330), (117), (3,219)
FY2022 Plan: 200, 100, (1,800), (1,500)
FY2023: 2,480 ~ 480, 360, 220, (100)
FY2025: 8,145 ~ 4,145, 3,035, 375, 735

	FY2019 Result*	FY2020 Result*	FY2021 Result*	FY2022 Plan	FY2023 Medium-term target	FY2025 Medium-term target

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Reference: Our Understanding of the Whitebox Market

Tailwind Behind Whitebox Adoption

【Impact level: High】
- Accelerated replacement of existing vendor products in EU region

【Impact level: Medium】
- Resumption of 5G deployment
- Supply chain issues (≒ Whitebox as a substitute due to HW delay)

Market Trends

- Whitebox adoption today is estimated to be at ~**12%**, driven by **Tier 2/3**
- Scale of whitebox software in 2023 in the 6 fields/use cases that IPI has been focusing on since 2020: **$2,434-4,952M**

Headwind Against Whitebox Adoption

【Impact level: High】
- Response to disaggregation solutions by existing market leaders
- Delay adoption until results are seen

【Impact level: Medium】
- Telecom service providers tend to like existing vendors in China, the largest market driving growth

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Enterprise

【Market attractiveness】
- Scale (2023): $1,041-2,043M
- Attractiveness: **High**

【Barriers to entry】
- **Medium-high**

【IPI positioning】
- Awareness : **Low**
- Performance on KBF : **High**
- NPS : - (Low sample number)
- GTM capabilities : **Low**
- R&D/Product capabilities : **Low**

Tier 2/3 (top priority)

【Market attractiveness】
- Scale (2023): $314-705M
- Attractiveness: **Medium**

【Barriers to entry】
- **Low**

【IPI positioning】
- Awareness : **High**
- Performance on KBF : **Medium**
- NPS : **High**
- GTM capabilities : **Medium**
- R&D/Product capabilities : **High**

Tier 1

【Market attractiveness】
- Scale (2023): $439-985M
- Attractiveness: **Medium**

【Barriers to entry】
- **Very high**

【IPI positioning】
- Awareness : **Low**
- Performance on KBF : **Low**
- NPS : **Low**
- GTM capabilities : **Low**
- R&D/Product capabilities : **Medium**
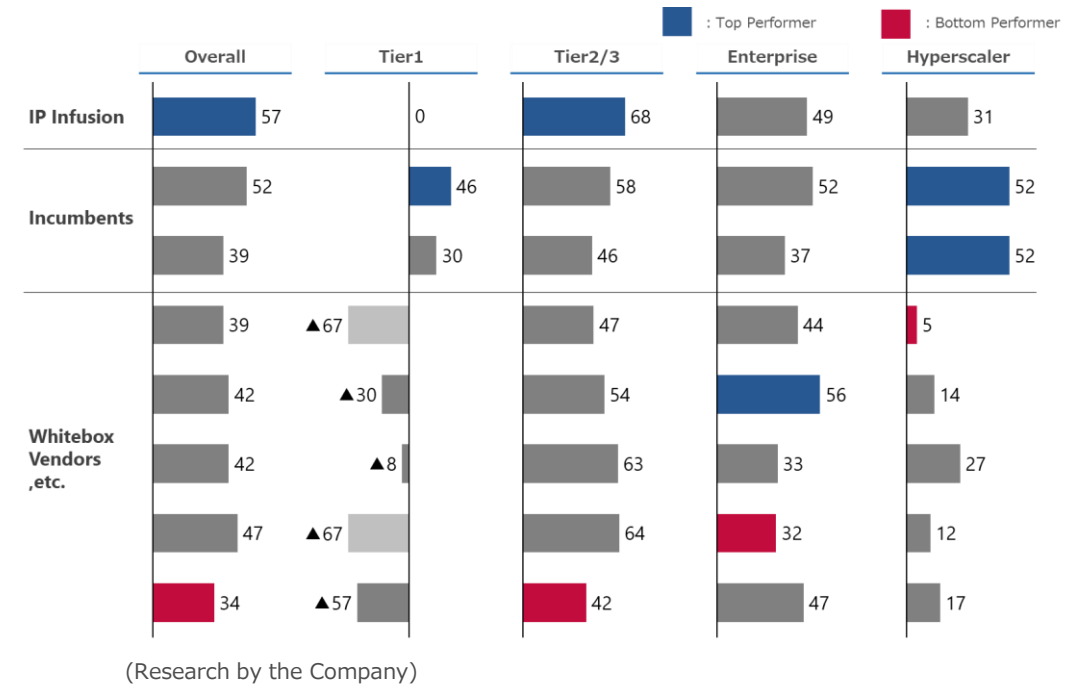
(Market scale: Estimates based on market reports)

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Reference: Segment Distribution and NPS Score Comparison
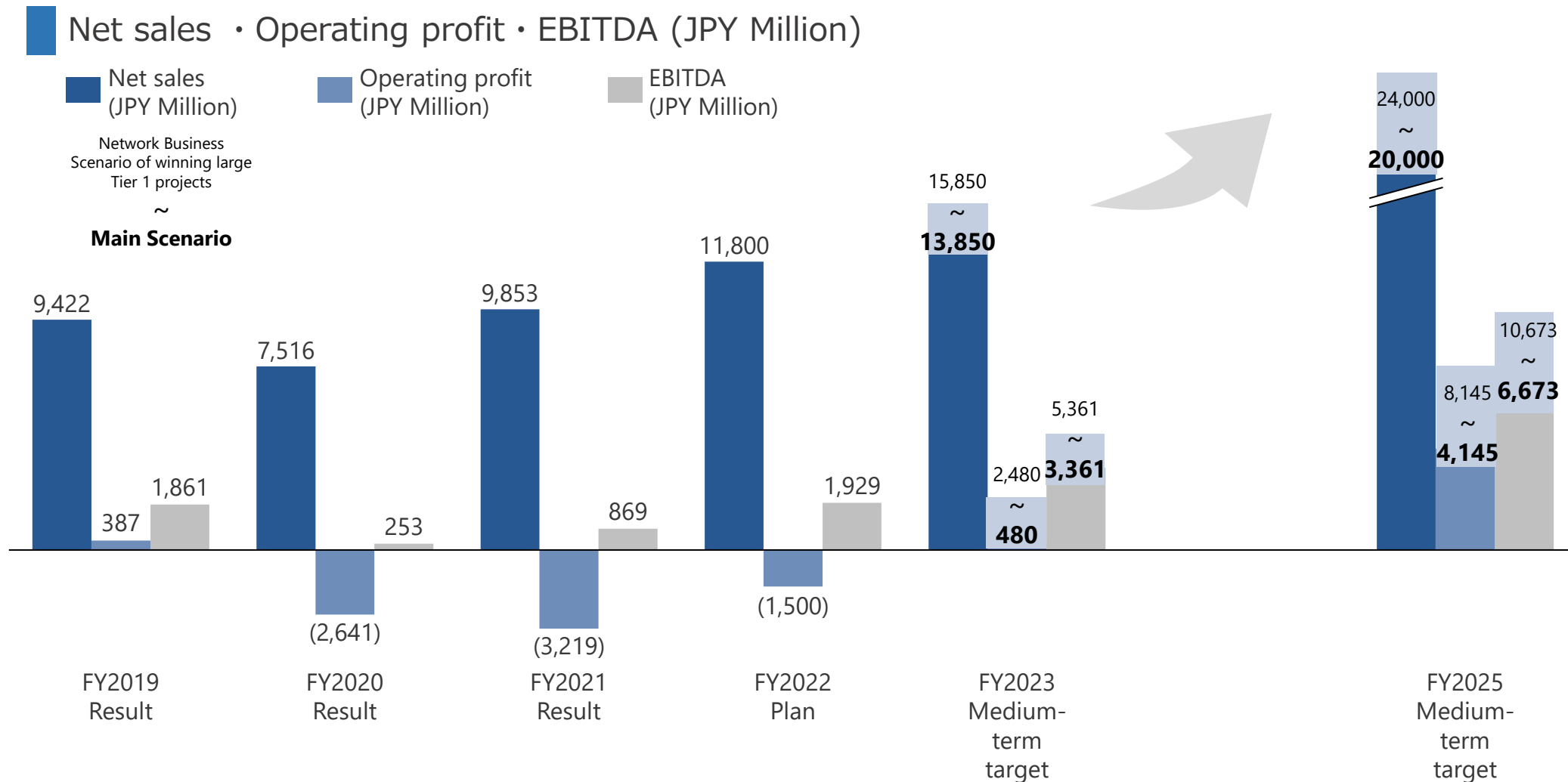
Segment Distribution

: ~ $ 50M

Low — Entry barriers — High

T2/3(OTN, PE, CSR)

Priority 1

Priority 2

Enterprise(DCN+CSR)

Hyperscalers(DCN+PE)

T1(OTN, PON ,PE)

Low — Market attractiveness — High

(Market scale: Estimates based on market reports)

NPS Score

■ : Top Performer   ■ : Bottom Performer

	Overall	Tier1	Tier2/3	Enterprise	Hyperscaler
IP Infusion	57	0	68	49	31
Incumbents	52	46	58	52	52
	39	30	46	37	52
Whitebox Vendors ,etc.	39	▲67	47	44	5
	42	▲30	54	56	14
	42	▲8	63	33	27
	47	▲67	64	32	12
	34	▲57	42	47	17

(Research by the Company)

- Market attractiveness and entry barriers are plotted on two axes
- The priority of the three use cases of OTN, PE, and CSR are higher even in Tier 2/3
  - ➢ Scale of whitebox software in 2023 in these 3 use cases: $181-417M

- IPI's NPS score in Tier 2/3 is higher than existing vendors and other whitebox vendors
  - ➢ Every segment shows an NPS score higher than other whitebox vendors

Trends of consolidated EBITDA

- Expect a return to profitability on FCF basis in FY2023
  - ➢ Assuming continued investment in software development around JPY 2-3 billion mainly in the Network Business

Net sales ・ Operating profit ・ EBITDA (JPY Million)

- Net sales (JPY Million)
- Operating profit (JPY Million)
- EBITDA (JPY Million)

Network Business Scenario of winning large Tier 1 projects

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Main Scenario

	FY2019 Result	FY2020 Result	FY2021 Result	FY2022 Plan	FY2023 Medium-term target	FY2025 Medium-term target
Net sales	9,422	7,516	9,853	11,800	15,850 ~ **13,850**	24,000 ~ **20,000**
Operating profit	387	(2,641)	(3,219)	(1,500)	2,480 ~ **480**	8,145 ~ **4,145**
EBITDA	1,861	253	869	1,929	5,361 ~ **3,361**	10,673 ~ **6,673**

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Financial Forecast for FY2022 (1)

(JPY Million)

	FY2021 Result	FY2022 Forecast	Increase (Decrease)	Change (%)
Net sales	9,853	11,800	+1,946	+19.8%
Operating profit	(3,219)	(1,500)	+1,719	-
Ordinary profit	(2,646)	(1,550)	+1,096	-
Profit attributable to owners of parent	(3,049)	(1,750)	+1,299	-
Basic earnings per share (JPY)	(77.96)	(44.68)	+33.28	-
Annual dividend per share (JPY)	0.00	0.00	-	-

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Financial Forecast for FY2022 (2)

(JPY Million)

		FY2021 Result*	FY2022 Forecast	Increase (Decrease)	Change (%)
IoT Business	Net sales	5,541	5,940	+398	+7.2%
	Segment profit (loss)	(117)	100	+217	-
Web Platform Business	Net sales	1,844	2,360	+515	+28.0%
	Segment profit	(330)	200	+530	-
Network Business	Net sales	2,467	3,500	+1,032	+41.8%
	Segment profit	(2,778)	(1,800)	+978	-

*: Reference value after changing segments

4. Network Business Details

Network Business Details

1   Market Conditions

2   Business Progress

3   Future Business Development

White box Market Overview

- An oligopoly by giant companies has continued for a long time, and moves by industry groups calling for openness are gaining momentum
  - Telecom Infra Project: Facebook, Telefonica, Vodafone, BT, etc.
  - O-RAN Alliance: AT&T, China Mobile, NTT Docomo, Deutsche Telecom, Orange
- Analyst reports are also beginning to focus on this as a market
- Expect the openness that occurred in the server field will also occur in the Network Business
- What customers expect from Network Disaggregation
  - Innovation and flexibility, provision of new services, reduced costs, elimination of vender lock-in
- Many customers are also anxious about product maturity, interoperability, and support for new operations

Top factors motivating your organization to adopt disaggregated networking solutions?

Factor	%
Faster innovation/flexibility in adopting latest technology/faster innovation	51%
Launch new services/increase revenue	39%
Reduce capex	38%
Break single vendor lock-in/Ability to choose from best-in-class suppliers/elements	32%
Increase network capacity	30%
Increase network reliability	30%
Add network programmability/automation	28%
Reduce opex	27%
Protect network infrastructure	24%
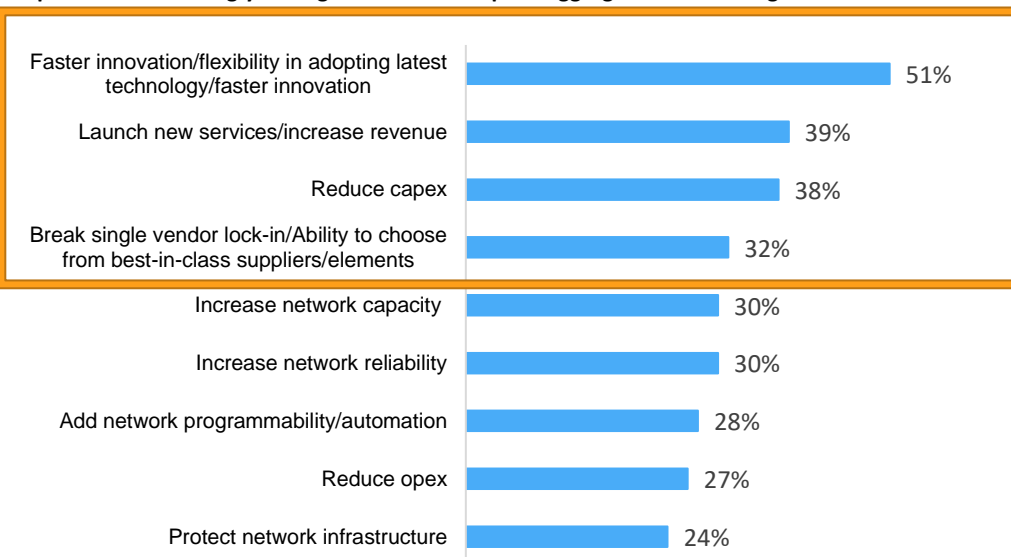
Biggest challenges to adopting/deploying open disaggregated networking technologies

Challenge	%
The technology maturity level and available features	61%
Internal processes and lack of operational models to deal with this type of solutions (e.g. procuring components from different suppliers)	50%
Security concerns	46%
Problem resolution and root cause analysis when several providers are involved (no single "throat to choke")	40%
Quality and reliability concerns	37%
Total cost is too high/not compelling (including capex and opex)	29%

Source: Omdia

© 2020 Omdia

Source: Omdia

© 2020 Omdia

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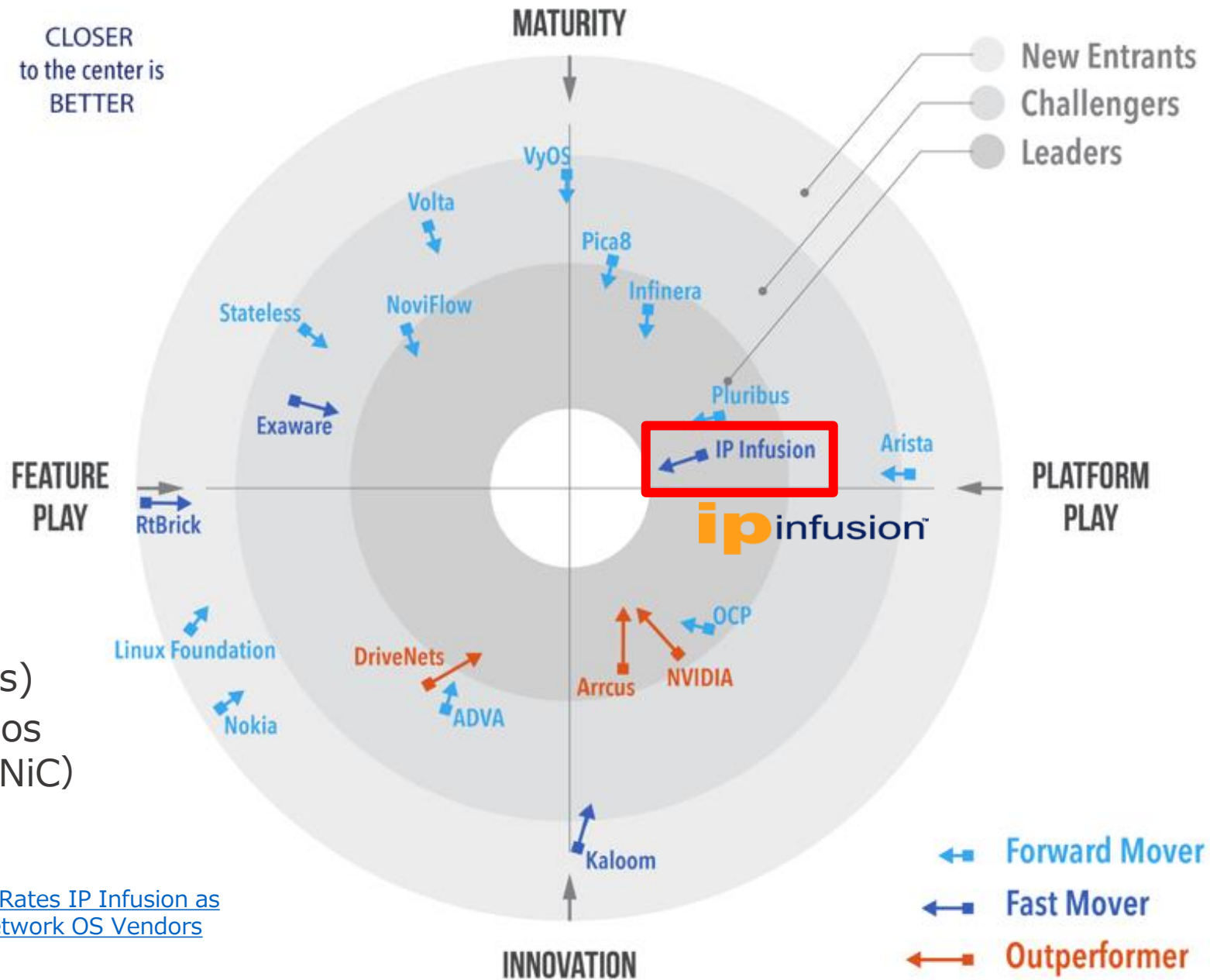# Ranked No. 1 in Analyst Reports: (1) GigaOm Rader

Received the highest rating in GigaOm Rader report

POINTS of High Rating
- Many examples of actual adoption
- Many supported functions
  （IPI supports 6 fields）
- Many product portfolios
  （OcNOS, Vyatta, SONiC）

Related announcement:
2/12/2021　GigaOm Rader Report Rates IP Infusion as Market Leader Among WhiteBox Network OS Vendors

CLOSER to the center is BETTER

MATURITY

New Entrants
Challengers
Leaders

VyOS
Volta
Pica8
Infinera
Stateless
NoviFlow
Exaware
Pluribus
IP Infusion
Arista

FEATURE PLAY
RtBrick

PLATFORM PLAY

ip infusion

Linux Foundation
DriveNets
OCP
Nokia
ADVA
Arrcus
NVIDIA
Kaloom

INNOVATION

⇐ Forward Mover
⟵ Fast Mover
⟵ Outperformer

ACCESS

The Highest Rating in Analyst Reports: (2) Analysys Mason

Received the highest rating in Analysys Mason report

POINTS of High Rating
- Many examples of actual adoption
- Many supported functions (support for 6 fields)
- Compatible with standard specs

Related announcement: 8/25/2021
Analysys Mason Rates IP Infusion as Main Leader Among Network OS for Telecom Service Providers

Business Progress in FY2021

- More than **65 New Customers** and **100 Repeat Orders** in 2021
- Steady increase in customers interested in trying whitebox
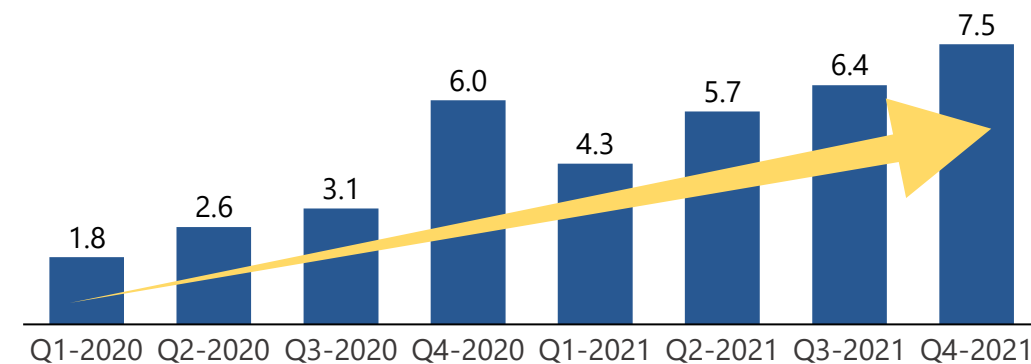- Overwhelming achievements in the whitebox market

■ Number of projects contracted in 2021
- Growth in the number of projects **nearly doubled**
- Number is steadily increasing
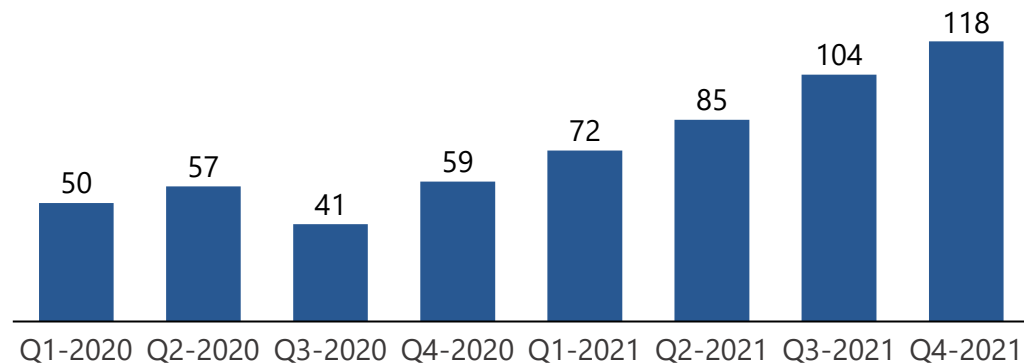
■ Amount of orders received in 2021* ($1MM)
- Growth in the amount of orders **nearly doubled**
- New and repeat orders, and annual maintenance support are becoming recurring sales

Q1-2020	Q2-2020	Q3-2020	Q4-2020	Q1-2021	Q2-2021	Q3-2021	Q4-2021
50	57	41	59	72	85	104	118

Q1-2020	Q2-2020	Q3-2020	Q4-2020	Q1-2021	Q2-2021	Q3-2021	Q4-2021
1.8	2.6	3.1	6.0	4.3	5.7	6.4	7.5

*: Including multiyear contracts

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Growth in Sales Pipeline

- As of January 2022, **98M** (up 47% in FY2021)
- Number of inquiries is also steadily increasing

2021 Sales Pipeline
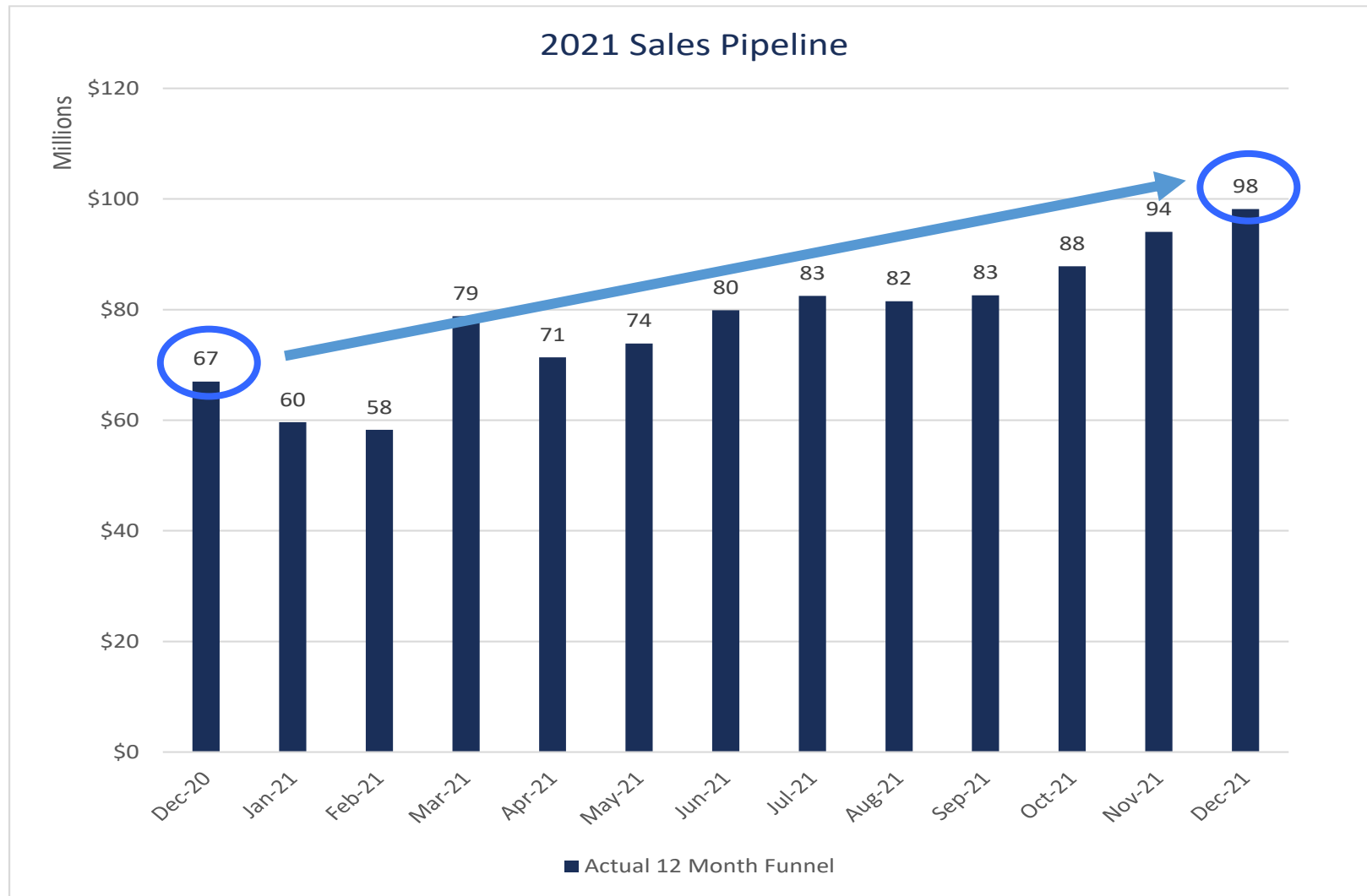
Details of and reasons for orders received

- **Market for products for sale (amount)**
  - 5G-related   54%   Shipments high in number and amount
  - Aggregation   19%   Same market as above due to 5G bundling
  - Data centers   16%
  - Optical transmission 6%   Small amount, but overwhelming results in optical field

Pie chart: Data Center, Provider Edge 5%, Optical Transmission 6%, 5G 54%, Aggregation 19%
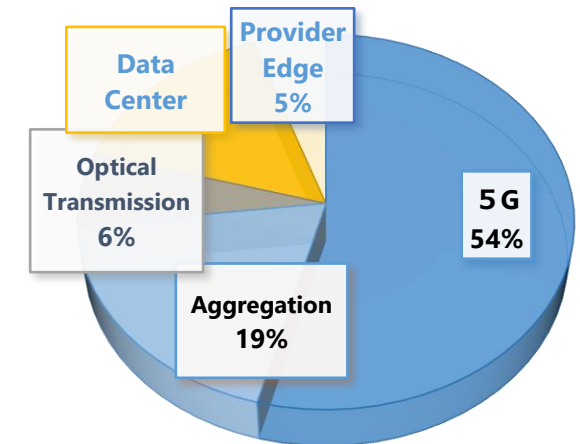
- **Reasons for orders**
  - Avoid vendor lock-in (cost)
  - Flexibility in network construction
  - Expectation for technical innovation

- **Source of contracted projects (number of projects)**
  - Existing partners   32%   Mostly project introductions from SI companies and TIP
  - Resellers   21%   The increase in resellers has begun to show effect
  - Online seminars   20%   Effect of online use during the COVID-19 pandemic
  - Existing customers 13%   Repeat orders began to accumulate
  - New direct sales   10%   Scale-up without relying on direct sales

Pie chart: Online seminars 20%, Web Inquiries 2%, New customers 10%, Existing customers 13%, New partners 2%, Existing partners 32%, Resellers 21%
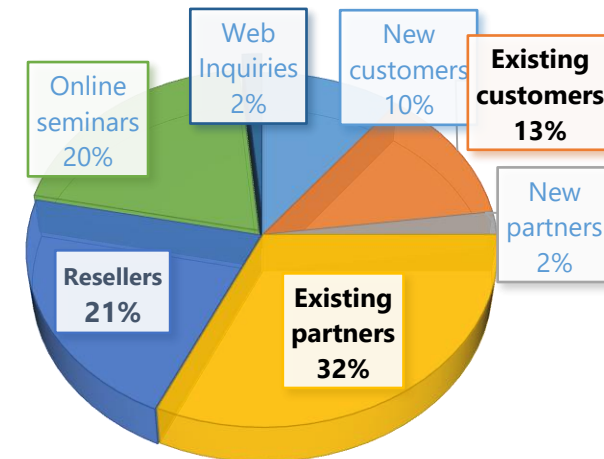
Promote the following from 2022:
(1) Continue focusing on 5G-related solutions
(2) Use channels to accelerate and scale up orders

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Future Business Development

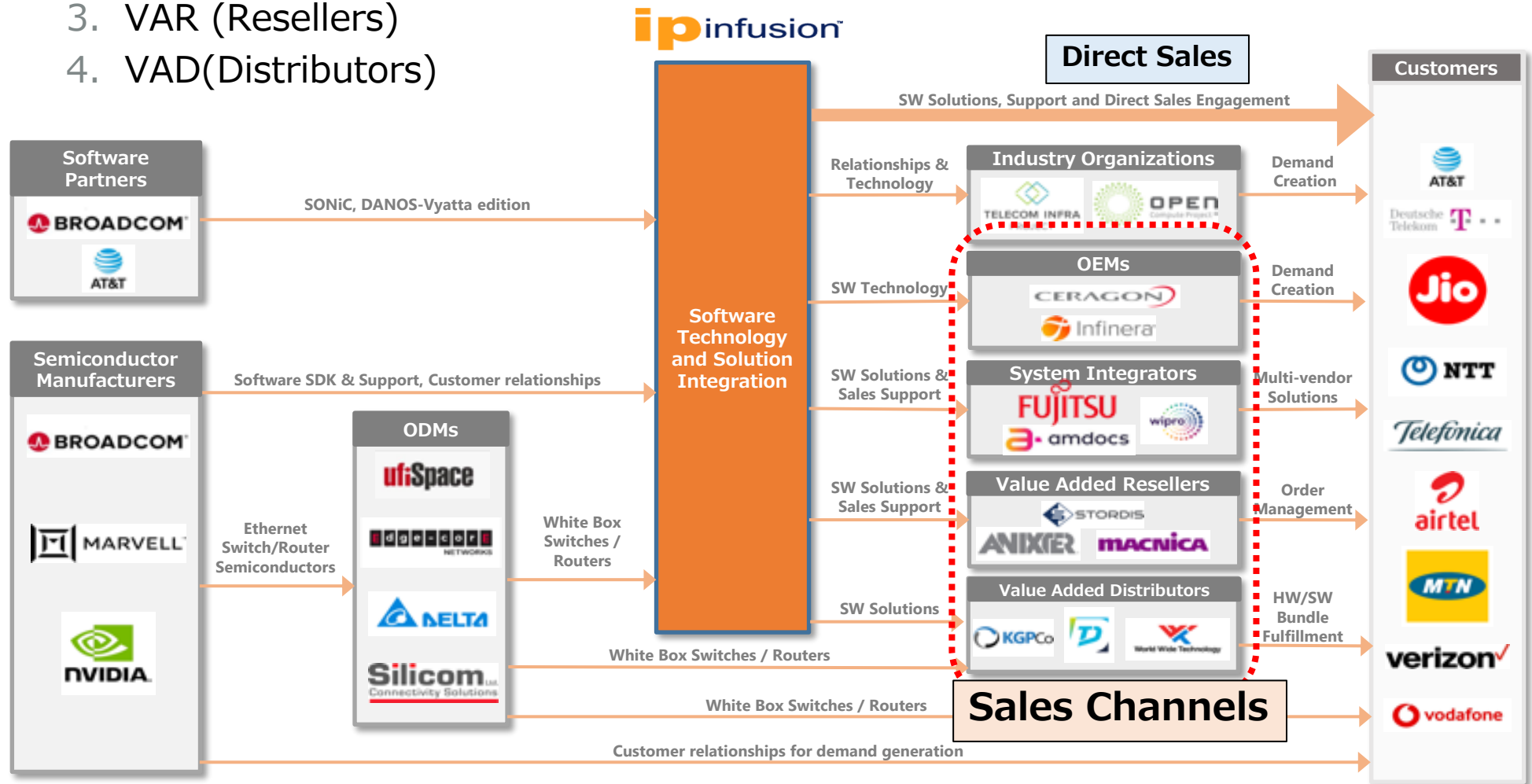1. Strategic Partnerships to Accelerate Sales
   - Expansion of sales channels
   - Expansion of OEM projects
   - Strengthen partnerships with TIP (Facebook)

2. Penetrate Telecom Service Providers to Expand Project Size
   - Participate in NTT IOWN concept

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Expansion of Sales Channels

- In addition to direct sales, develop and expand the following channels
  1. OEM Projects
  2. SI
  3. VAR (Resellers)
  4. VAD(Distributors)

ip infusion

Direct Sales

Customers

SW Solutions, Support and Direct Sales Engagement

Software Partners
BROADCOM
AT&T

SONiC, DANOS-Vyatta edition

Relationships & Technology

Industry Organizations
TELECOM INFRA | OPEN Compute Project

Demand Creation

Software Technology and Solution Integration

SW Technology

OEMs
CERAGON
Infinera

Demand Creation

Semiconductor Manufacturers
BROADCOM
MARVELL
NVIDIA

Software SDK & Support, Customer relationships

SW Solutions & Sales Support

System Integrators
FUJITSU | wipro
amdocs

Multi-vendor Solutions

ODMs
ufiSpace
NETWORKS
DELTA
Silicom Connectivity Solutions

Ethernet Switch/Router Semiconductors

White Box Switches / Routers

SW Solutions & Sales Support

Value Added Resellers
STORDIS
ANIXTER | MACNICA

Order Management

SW Solutions

Value Added Distributors
KGPCo | D | World Wide Technology

HW/SW Bundle Fulfillment

White Box Switches / Routers

White Box Switches / Routers

Sales Channels

Customer relationships for demand generation

AT&T
Deutsche Telekom
Jio
NTT
Telefónica
airtel
MTN
verizon
vodafone

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Expansion of OEM Projects

》 Develop products over the short-term with OcNOS as the base software in order for network hardware vendors (OEM) to expand product portfolios using their own strengths

》 Allow smooth introduction to telecom service providers that have already introduced the software and largely solves the issue of taking time for adoption by telecom service providers

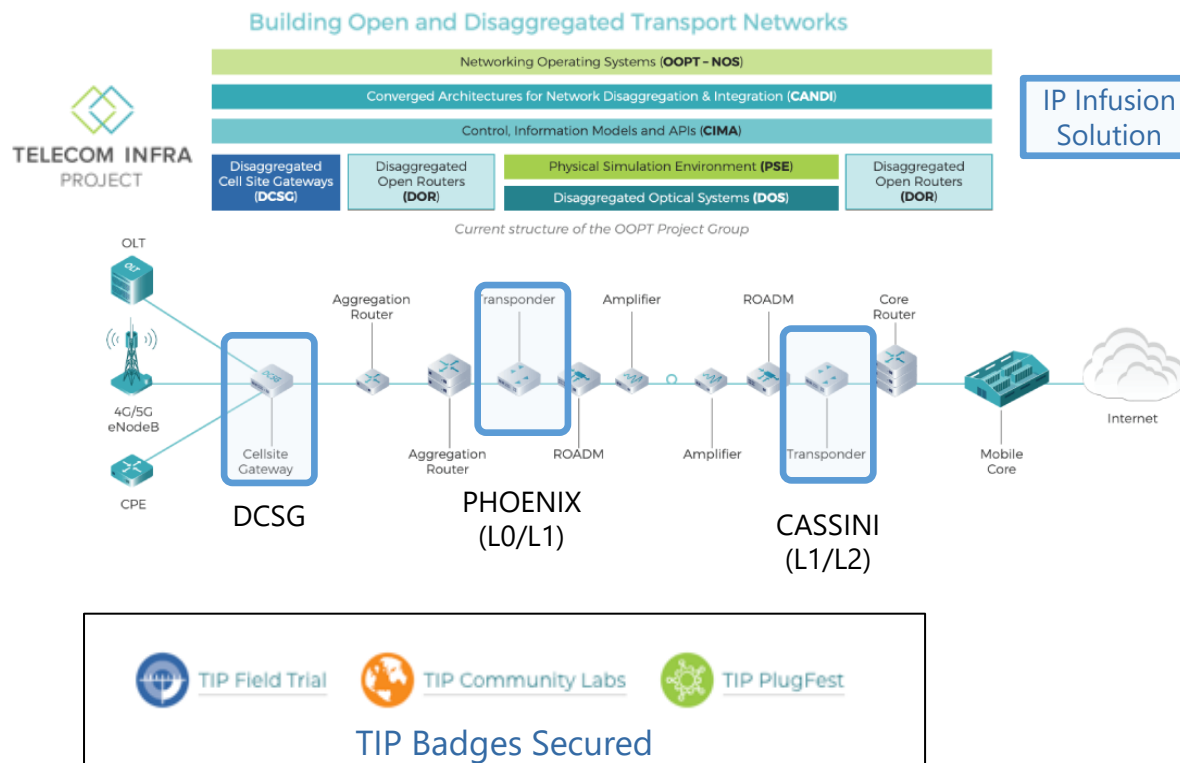**From the perspective of telecom service providers, OcNOS = White box adoption takes time**
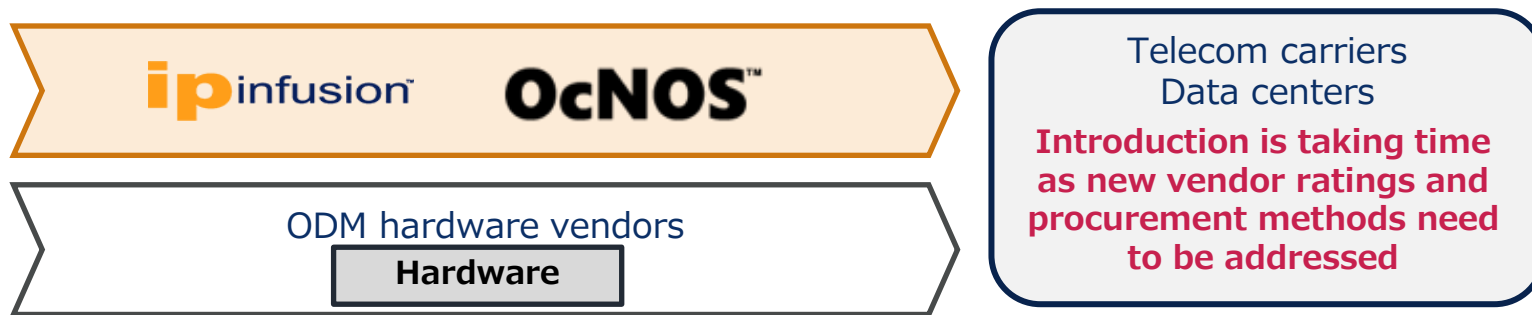
License and customize OcNOS as a base for OEM to develop their new products of their own brand
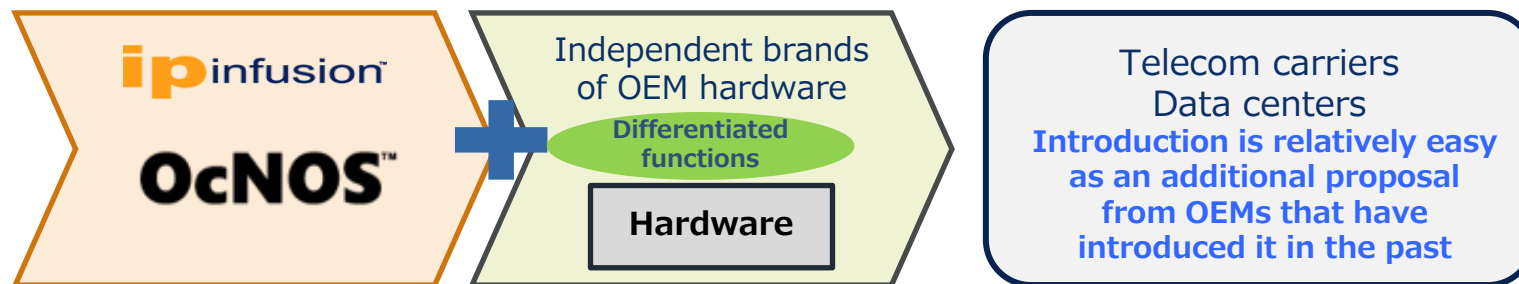
Strengthen Partnerships with TIP (Facebook): OOTP

- Contributions to multiple projects within OOPT (Open Optical & Packet Transport)
  - DCSG, Optical Systems, E2E architectures, Open NOS
- IP Infusion solutions are commercially reputable and have received multiple TIP Badges
- Active participation in product evaluation, verification, and interoperability testing led by global telecom service providers
- Incoming orders for various projects while receiving support from TIP as recognition increases through the above

Building Open and Disaggregated Transport Networks

Networking Operating Systems (OOPT – NOS)
Converged Architectures for Network Disaggregation & Integration (CANDI)
Control, Information Models and APIs (CIMA)

| Disaggregated Cell Site Gateways (DCSG) | Disaggregated Open Routers (DOR) | Physical Simulation Environment (PSE) | Disaggregated Open Routers (DOR) |

Disaggregated Optical Systems (DOS)

Current structure of the OOPT Project Group

IP Infusion Solution

DCSG | PHOENIX (L0/L1) | CASSINI (L1/L2)

TIP Field Trial | TIP Community Labs | TIP PlugFest

TIP Badges Secured

Sub-Group	Key Lab Trials and PoCs
Disaggregated Cell Site Gateways (DCSG)	• KDDI lab trials, Japan • TIM-led community lab for 5G network, Brazil • MTN lab trials, South Africa • ITRI (Taiwan) PlugFest
Disaggregated Optical Systems (Cassini)	• PGASCOM lab trials, Indonesia • TIP lab, Telekom University, Indonesia • CpQD TIP community lab, Brazil • Turkcell lab trials, Turkey
Converged Architectures for Network Disaggregation and Integration (CANDI)	• NTT sponsored community lab, Japan

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Strengthen Collaboration in NTT's IOWN Concept

Signed MOU with NTT on July 27, 2021

Business partnership to spread white box

Keynote lecture at NTT R&D Forum by President Sawada

"The Introduction of super white box in 2025" was cited, and active collaboration is underway

Results of collaboration announced at R&D forum

- 3 demo exhibits
  - Ultra-low latency video-transmission
  - Quantum cryptographic key distribution in optical communication
  - Routing control in optical communication

- 2 panel exhibits
  - Orange-NTT collaboration through TIP
  - IOWN browser research

Business partnership between NTT and ACCESS (IP Infusion)

⊙ **NTT**

NTT
Advanced infra-software development
X
Operational knowledge

ACCESS
（IP Infusion）
Commercialization of infra-software
X
Global sales channels and maintenance system

Sales and maintenance of network OS filled with NTT's carrier knowledge through ACCESS (IP Infusion) sales channels

Promote global spread of open network infrastructure with separate hardware and software using Whitebox

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Summary

- Continuously enhancing products and expansion of sales channels resulted in winning 65 new adoptions and more than 100 repeat orders in 2021

- The number of adoptions, etc. was also highly rated in external reports and greatly increased market recognition

- Increased referrals of deals from TIP (Facebook)

- We will continue approaching major telecom service providers to win large-scale adoptions

- It is taking time, but the direction we are heading is not mistaken. Therefore, we will strive to accelerate and scale up emerging business results