

Internet Landscape of Korea & Update of KRNOG



1. Nov. 2023

Mr. Mike Hwang / KRNOG

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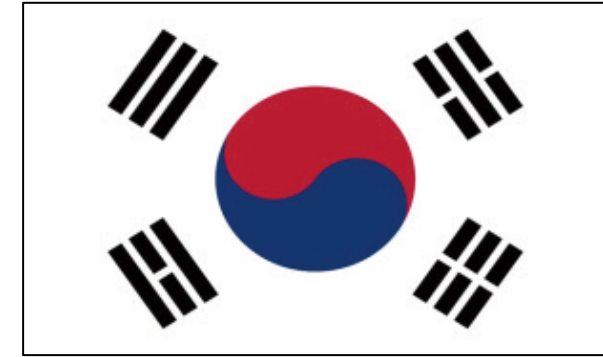
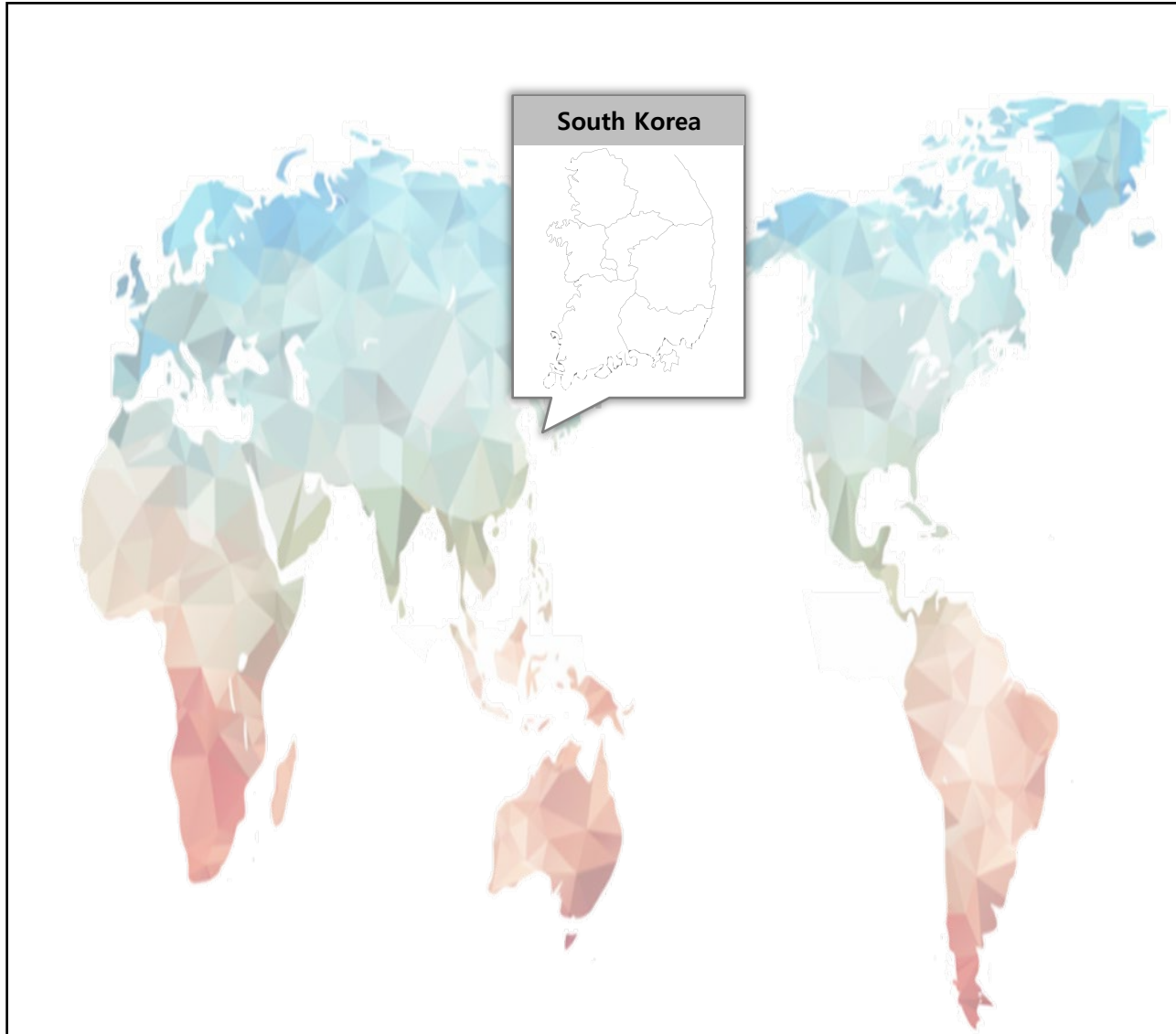
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Update for KRNOG

1. Republic of Korea (South Korea)



| | |
|---------------------------------|--|
| Name | Republic of Korea |
| Language | Korean |
| Area | 100,188.1km²/221,000km² |
| Population | 51,628,117 |
| GDP(per capita) | \$32,236.800 USD |
| Capital City | Seoul |
| Administrative Divisions | 7 Major city / 8 province |
| Currency | KRW (1USD=1354 Won) |

Source: THE BANK OF KOREA

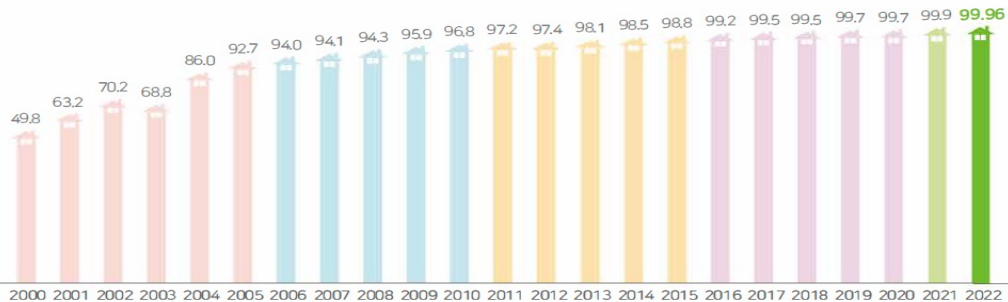
1. Republic of Korea (South Korea)

How much do our citizens use the internet?

가구 인터넷 접속률(%) _ 전체 가구 대상

우리나라 2,136만 가구 중
2,136만 가구 인터넷 접속 가능

99.96
%



인터넷 이용자 수(이용률) _ 최근 1개월 이내 인터넷 이용 기준

만 3세 이상 국민 5,081만명 중
대한민국 인터넷 이용자 수

93%
약 47,253,345 명

1. Republic of Korea (South Korea)

How much do our citizens use the internet?

성별 인터넷 이용률 _ 만 3세 이상 전체

남성이용률이 여성이용률 보다 3.0%p 높음

여성
91.5%

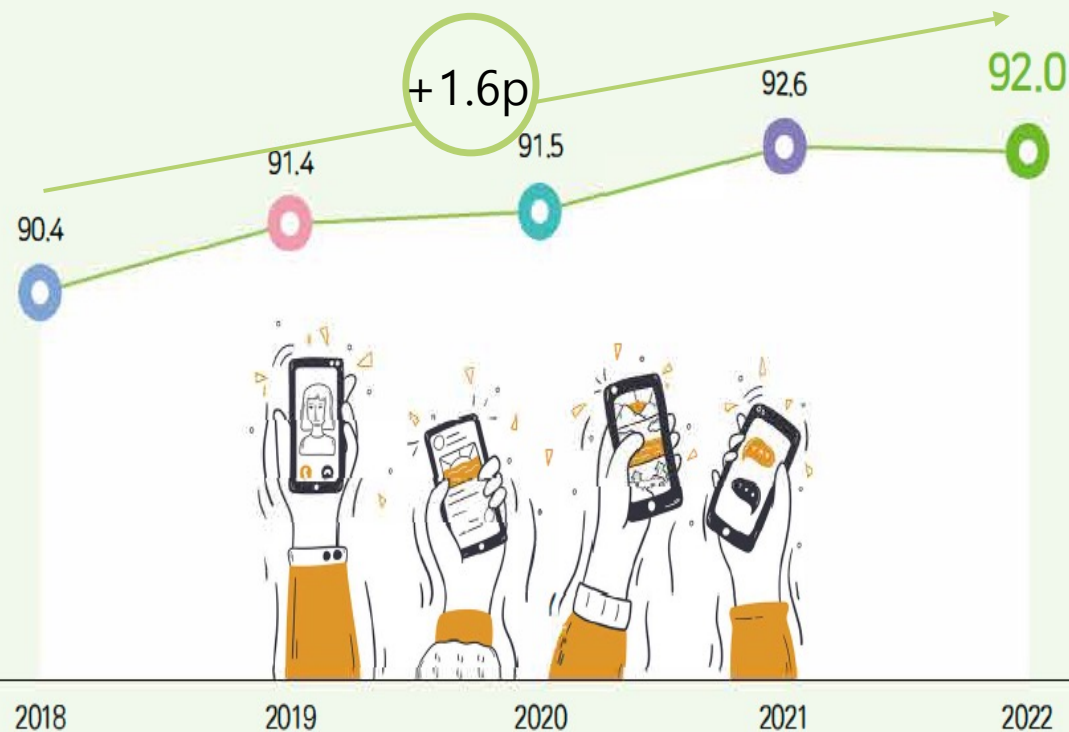
3.0%p

남성
94.5%



모바일 인터넷 이용률(%) _ 만 3세 이상 전체

'18년 대비 1.6%p 증가

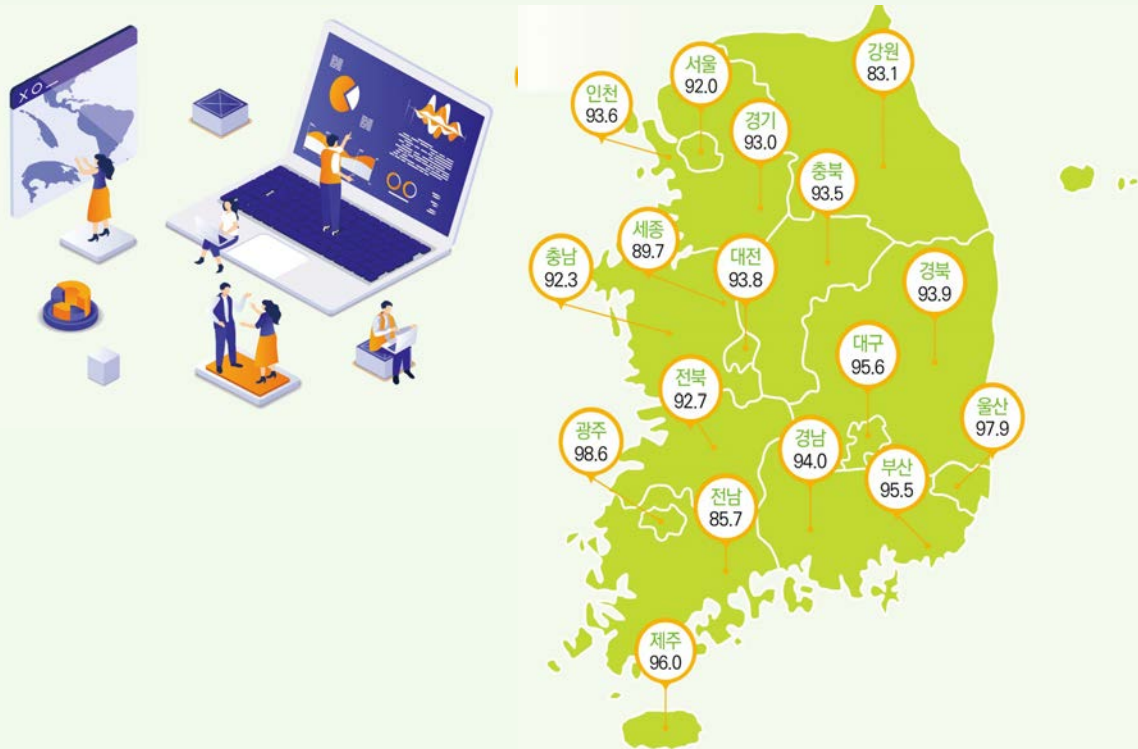


1. Republic of Korea (South Korea)

How much do our citizens use the internet?

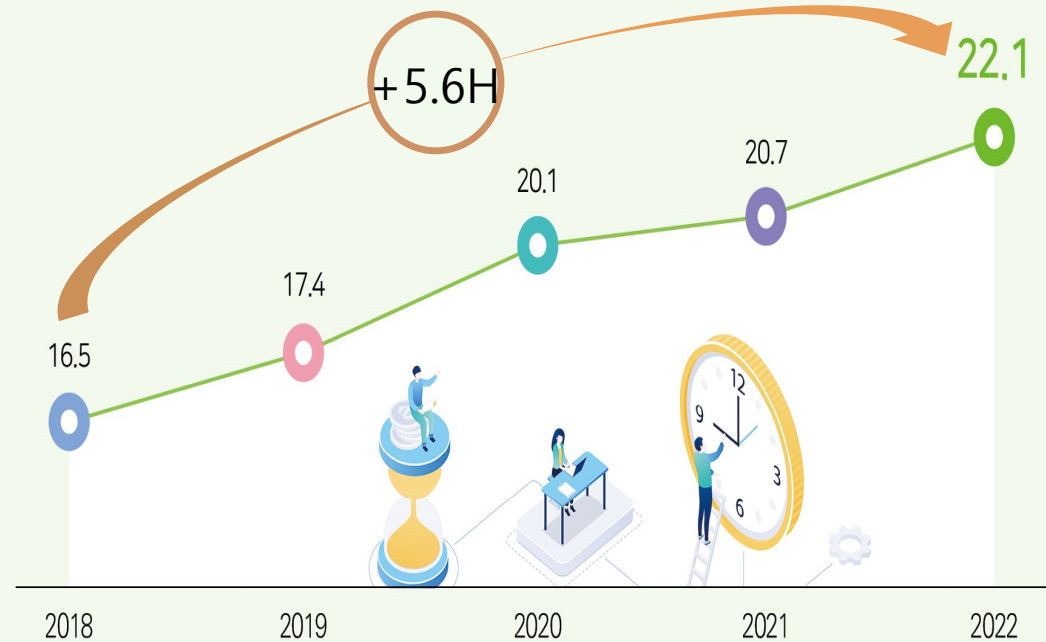
지역별 인터넷 이용률(%) _ 만 3세 이상 전체

전국 17개 시·도 중
14개 시·도 이용률 90%이상



인터넷 이용시간(주 평균시간) _ 만 3세 이상 인터넷 사용자

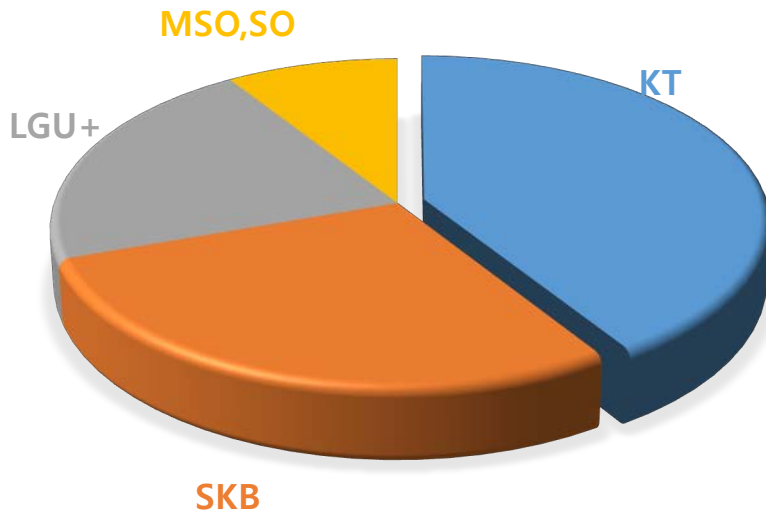
'18년 대비 5.6시간 증가



2. Status of Internet in South Korea

Fixed

Status on Fixed Network



[Percentage of Subscribers]

Percentage of Subscribers

| ISP | % of Subscribers | # of Subscribers |
|--------------|------------------|-------------------|
| KT | 41% | 9,798,909 |
| SKB | 28.6% | 6,847,584 |
| LGU+ | 21.3% | 5,090,561 |
| MSO,SO | 9.1% | 2,168,318 |
| Etc. | 0.1% | 12,987 |
| Total | 100% | 23,918,359 |

Source: The Ministry of Science and ICT(MSIT) (2023)

Number of Subscribers

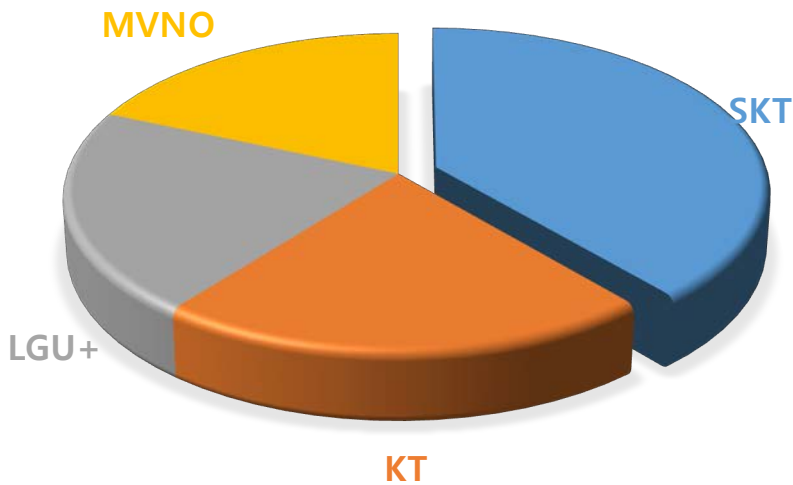
| ISP | 2019 | 2020 | 2021 | 2022 | 2023 |
|--------------|-------------------|------------------|------------------|-------------------|-------------------|
| KT | 8,962,390 | 9,171,398 | 9,454,745 | 9,726,575 | 9,798,909 |
| SK Broadband | 5,613,200 | 6,475,930 | 6,580,698 | 6,703,811 | 6,847,584 |
| LG U+ | 4,283,914 | 4,529,312 | 4,758,060 | 4,936,458 | 5,090,561 |
| MSO, SO | 3,030,024 | 2,136,864 | 2,138,109 | 2,157,584 | 2,168,318 |
| Etc. | 16,644 | 13,678 | 12,656 | 12,905 | 12,987 |
| Total | 21,906,172 | 9,171,398 | 9,454,745 | 23,537,333 | 23,918,359 |

Source: The Ministry of Science and ICT(MSIT) (2023)

2. Status of Internet in South Korea

Mobile

Status on Mobile Network



[Percentage of Subscribers]

Percentage of Subscribers

| Mobile Operator | % of Subscriber | # of Subscriber |
|-----------------|-----------------|-------------------|
| SKT | 38.8% | 31,386,626 |
| KT | 21.9% | 17,701,018 |
| LGU+ | 20.9% | 16,943,504 |
| MVNO | 18.5% | 14,943,291 |
| Total | 100% | 80,974,439 |

Source: The Ministry of Science and ICT(MSIT) (2023)

Number of Subscribers

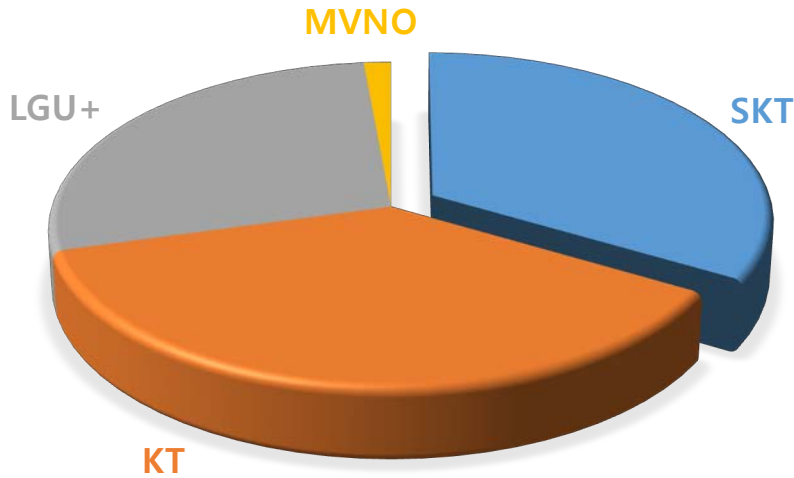
| Mobile | 2019 | 2020 | 2021 | 2022 | 2023 |
|-----------|-------------------|-------------------|-------------------|-------------------|-------------------|
| SKT | 28,828,480 | 29,261,390 | 29,881,825 | 30,650,174 | 31,386,626 |
| KT | 18,150,190 | 17,388,291 | 17,466,923 | 17,500,419 | 17,701,018 |
| LGU+ | 14,164,355 | 14,752,710 | 15,151,667 | 16,012,267 | 16,943,504 |
| MVNO | 7,749,516 | 9,111,285 | 10,355,077 | 12,829,247 | 14,943,291 |
| 합계 | 68,892,541 | 70,513,676 | 72,855,492 | 76,992,107 | 80,974,439 |

Source: The Ministry of Science and ICT(MSIT) (2023)

2. Status of Internet in South Korea

5G

Status on 5G Network



Percentage of 5G Subscribers

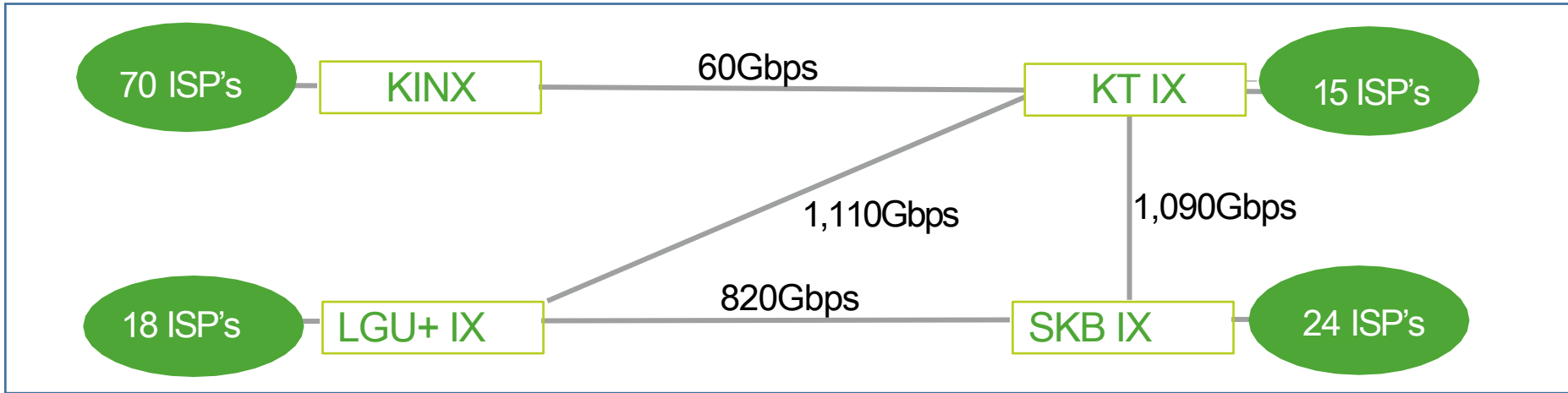
| Operator | # of Subscriber | # of 5G Subscriber | % of 5G Subscribers |
|--------------|-------------------|--------------------|---------------------|
| SKT | 31,386,626 | 15,009,720 | 48% |
| KT | 17,701,018 | 9,433,889 | 53% |
| LGU+ | 16,943,504 | 6,755,872 | 40% |
| MVNO | 14,943,291 | 308,578 | 2% |
| Total | 80,974,439 | 31,508,059 | 39% |

Source: The Ministry of Science and ICT(MSIT) (2023)

- Korea was the first country which 5G service has been commercialized. (2019.04.03)
- In 2021, 3 MNOs and Gov't have agree to implement the National Roaming among 5G Networks
- Expanding coverage fast and overcoming the digital divide



Interconnection structure of IXPs



[Korea Internet & Security Agency, 2020]

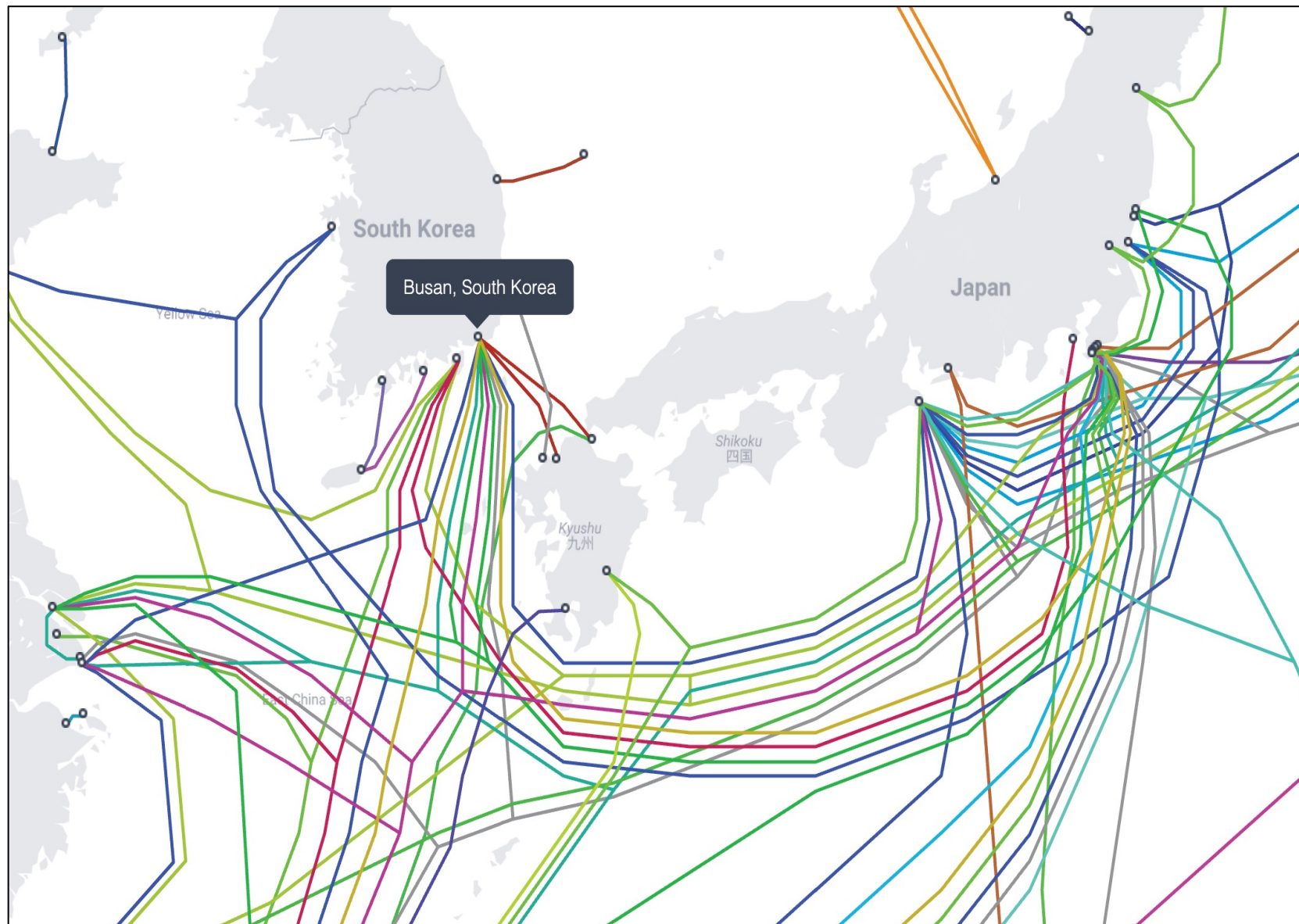
Linkage status of IXPs in the Republic of Korea

| IXP | Operating institution | Number of ISPs connected | Total connection capacity (Gbps) |
|-------|-----------------------|--------------------------|----------------------------------|
| KTIX | KT | 15 | 625 |
| DIX | LG U+ | 18 | 2,443 |
| SKBIX | SK Broadband | 24 | 2,566 |
| KINX | KINX | 70 | 2,823 |

Source: Korea Internet and Security Agency, "Korea Internet White Paper 2020", 2020.

3-2. Status of Infrastructure

Submarine Cable



Cable Landing Station

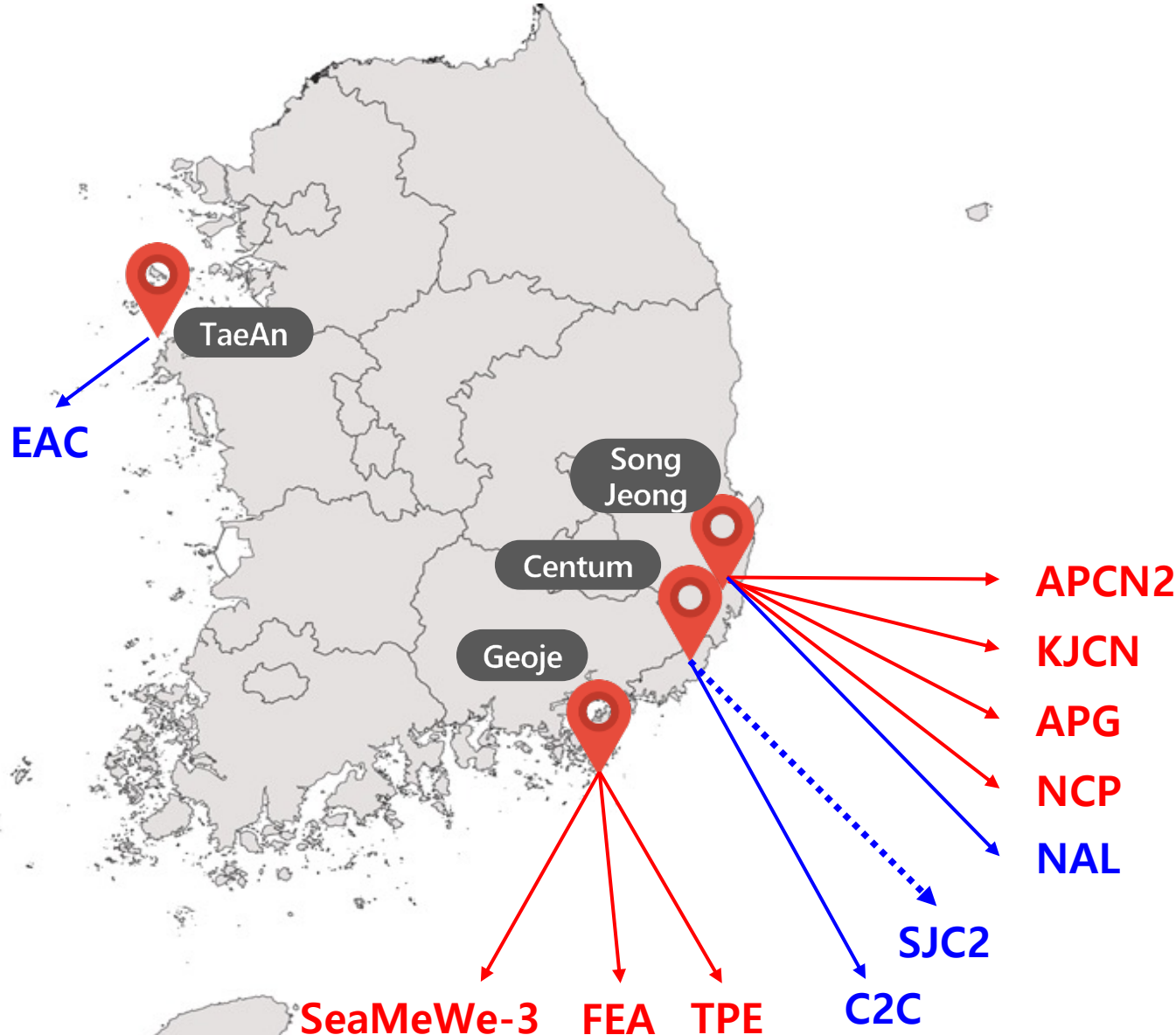
| |
|----------------------|
| TaeAn |
| Busan Songjeong |
| Busan Centum(Sejong) |
| Geoje |
| Busan Centum(SKB) |

Submarine Cables

| |
|--------------|
| FEA |
| SMW-3 |
| APCN2 |
| KJCN |
| EAC |
| C2C |
| FNAL |
| TPE |
| APG |
| SJC2('24.3Q) |
| ... |

3-2. Status of Infrastructure

Submarine Cable



| Submarine Cables | | | |
|------------------|-----------------|------------|---------|
| CLS | Cables | Owner | Service |
| KT (SongJeong) | APCN2 | Consortium | 2001 |
| | KJCN | Consortium | 2002 |
| | APG | Consortium | 2016 |
| | NCP | Consortium | 2018 |
| | NAL (FNAL/RNAL) | Private | 2002 |
| KT (Geoje) | SeaMeWe-3 | Consortium | 1999 |
| | FEA | Consortium | 2000 |
| | TPE | Consortium | 2008 |
| TaeAn | EAC | Private | 2002 |
| Centum (Sejong) | C2C | Private | 2002 |
| Centum (SKB) | SJC2 | Consortium | 2024 |

APCN2 : Asia Pacific Cable N/W, KJCN : Korea Japan Cable N/W, APG : Asia Pacific G/w, NCP : New Cross Pacific, NAL : North Asia Loop, FEA : Flag Europe Asia, TPE : Trans Pacific Express, EAC : East Asia Crossing, C2C : City To City, SJC2 : Southeast-asia Japan Cable-2

I. 데이터센터 산업 개요

Domestic data centers in Korea

국내 사업자 데이터센터(상업용) 현황



Seoul Metropolitan Area

Gyeonggi Province

Other Areas

| Player | Centers(n) (2022) | Capacity(MW) (2022) | Rack Stock(E) (2022) |
|---------------------|----------------------|------------------------|-------------------------|
| kt | 5 | 90.6 | 26,400 |
| LG U+ | 4 | 26 | 11,800 |
| SK broadband | 2 | 51 | 12,100 |
| Others | 6 | 46 | 21,700 |
| Sub Total | 17 | 213.6 | 72,000 |
| kt | 1 | 9 | 5,000 |
| LG U+ | 1 | 80 | 12,000 |
| SK broadband | 3 | 33 | 7,900 |
| Others | 12 | 119 | 32,400 |
| Sub Total | 17 | 241 | 57,300 |
| LG CNS | 1 | 18 | 5,200 |
| SK C&C | 1 | 4.1 | 2,600 |
| Sub Total | 2 | 22.1 | 7,800 |
| Total | 36 | 476.7 | 137,100 |

II. 데이터센터 시장 전망

Market Size

데이터센터 시장 현황 및
전망

“2027년까지 약 34+개의 신규 상업용 데이터센터 구축 프로젝트가 추진 및
계획 중으로, 신규 프로젝트로 인한 투자액은 약 14조원 이상에 달할 것”

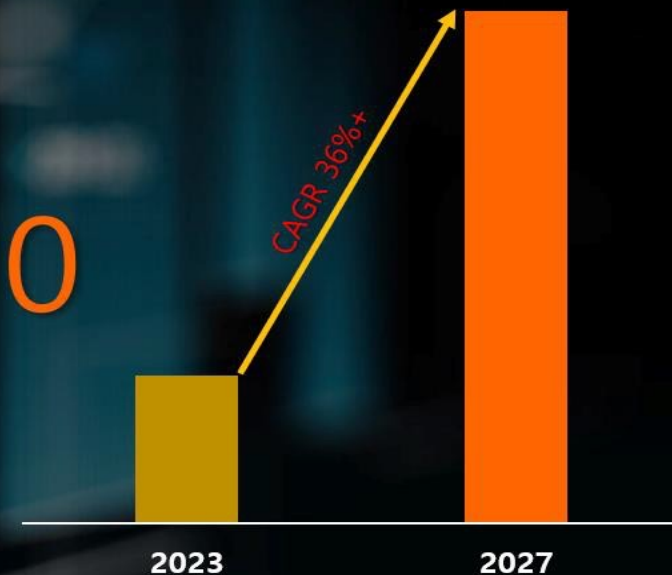
Number of data centers
2023-2027

40 < 74
34+
Centers



Data center capacity(MW)
2023-2027

544 < 1,850
1,300+
MW



3-3. Status of Infrastructure

Data Center

Global DC Operators rush into Korea Market



4. KRNOG

Birth of KRNOG



4. KRNOG

Mission

- KRNOG will have a positive influence ICT industry in South Korea
- KRNOG will play critical role in sharing technical knowledge
 - To promote discussion on peering and internet governance
 - To Share best practices, new technology and experience
 - To enhance overall quality of Internet infrastructure
 - Performance, security, stability
 - To help trouble-shooting and solve problems together

4. KRNOG

Format & Events

- No registration fee
- Mini events /Annual events
 - Half-day, once every 6 months or 1 years
 - Need speakers, local or overseas
 - Need sponsorship
- Language
 - Primarily Korean (English is available for foreign speakers)

4. KRNOG

Activities of KRNOG

- Discussion from Feb 2020
- KRNOG official declaration via APRICOT
- KRNOG update via APRICOT
- Peering Social / sponsored by APRICOT
- KRNOG update via APRICOT
- KRNOG 1.0 event was held on 2023.4.13
- Upcoming event
 - KRNOG 2.0 (Middle of 2024)



4. KRNOG

Committee Member

- Mike Hwang / Chair
- Steering committee



Mike Hwang



Brian Kim



Sugon Myung



Sahyuck Yun



Claire Yu



Sungwoong Woo



Seyoung Chung



Jay Park

- We need more volunteers and patron.

4. KRNOG

Stay with US

Facebook: <https://www.facebook.com/groups/krnog>

Linkedin: <https://www.linkedin.com/groups/14223094>



Mailing list : krnog@googlegroups.com

– Volunteer, Sponsors

THANK YOU

The image features a vibrant, futuristic cityscape at night, rendered in shades of blue and purple. The city is composed of numerous illuminated buildings and structures, creating a dense urban environment. Overlaid on this cityscape is a complex, glowing grid pattern that resembles a digital or network structure. Vertical lines of varying heights extend upwards from the city, some ending in small blue dots, suggesting data points or signal towers. The background is a deep, dark blue with scattered white stars, giving the impression of a vast, digital space or a night sky. The overall aesthetic is high-tech and modern.