Internet Regulation in Korea

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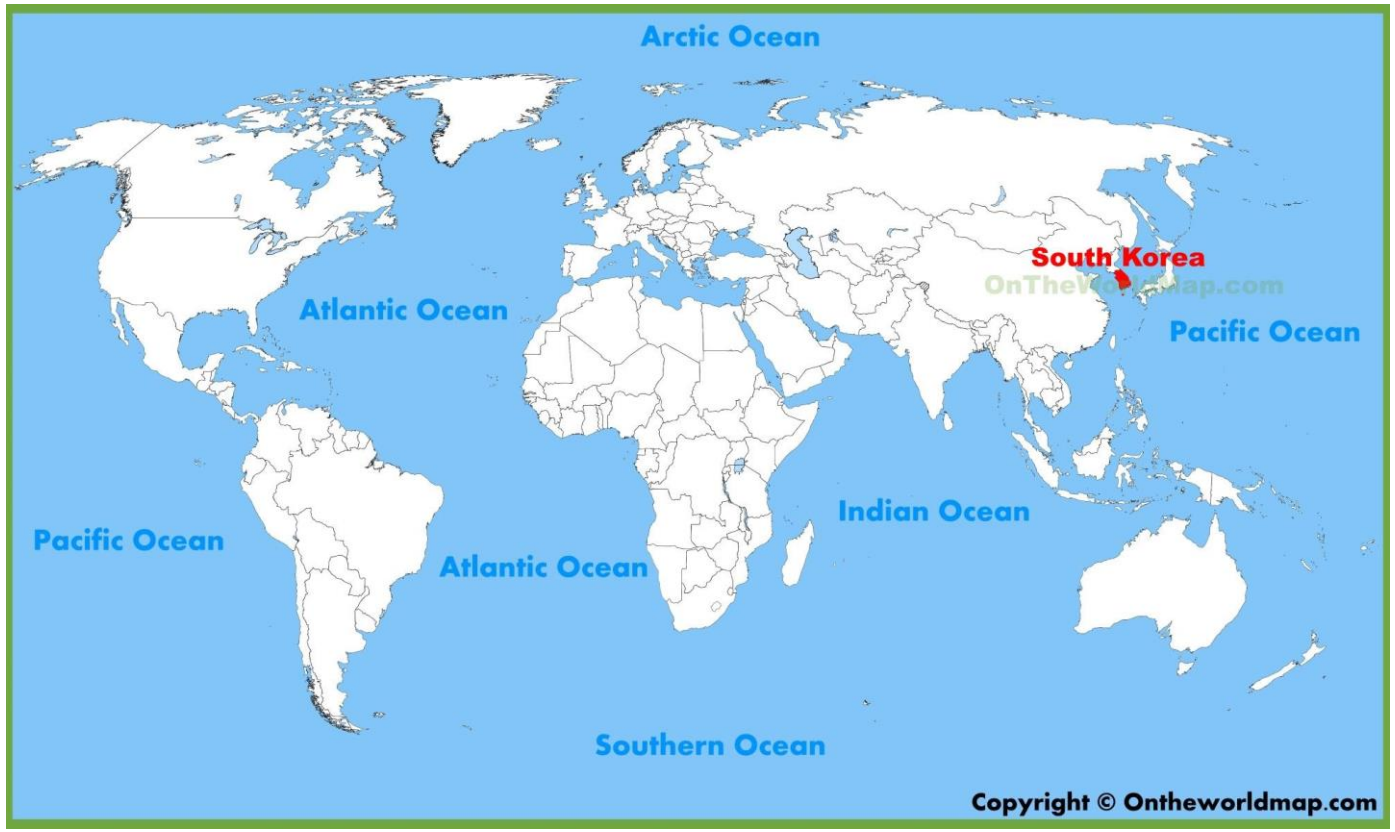
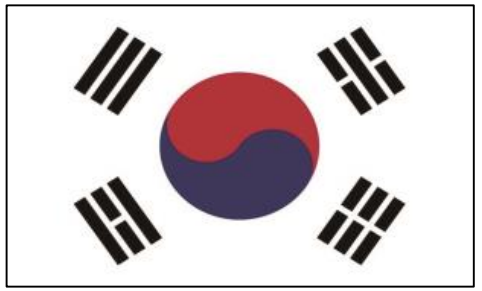
1. Introduction of Korea

Republic of Korea (South Korea)





Name	Republic of Korea
Language	Korean
Area	100,188.1km^2/221,000km^2
Population	51,836,763
GDP(per capita)	$31,246
Capital City	Seoul
Administrative Divisions	7 major city / 8 province
Currency	KRW (1USD=1180won)

1. Introduction on Korea

- One of the leading IT industry countries in the world
- Internet penetration per household : 99.5%
- One of the fastest internet speeds in the world
- One of the largest online gaming markets : e-sports
- The first 5G service in the world

Domestic Companies

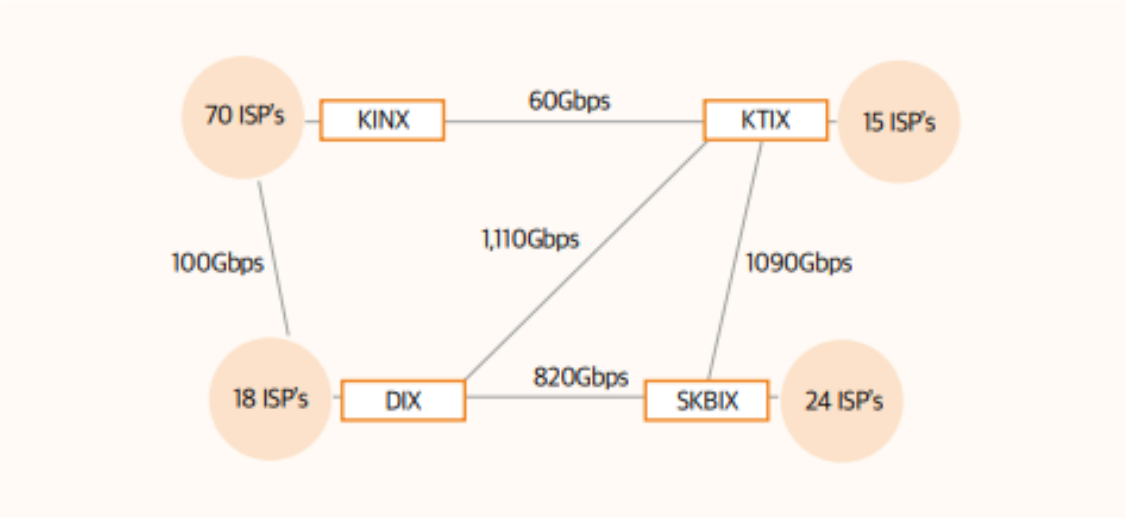
- ✓ ISP : KT, SKB, LGU+, Dreamline, Sejong, etc.
- ✓ SO : D'live, CJHV, Hyundai HCN, etc.
- ✓ IXP : KINX, Sejong
- ✓ CP : Naver, Daum Kakao, NCsoft, etc.

Rank	Country	Mbps
1	Norway	67.54
2	Canada	65.90
3	Qatar	60.97
4	Netherlands	60.60
5	Australia	58.87
6	South Korea	54.89
7	United Arab Emirates	53.83
8	Singapore	53.69
9	Switzerland	51.93
10	Denmark	50.59
11	Belgium	50.57
12	Sweden	49.79
13	Malta	48.86
14	Czech Republic	48.84
15	Albania	47.98

2019, Speedtest Global Index

1. Introduction on Korea

Interconnection (2019)



[한국인터넷진흥협회, 2019]
(KISPA, 2019)

Company	IX	TYPE	# of Interconnection	Capacity
KT	KTIX	L3	15	2,985Gbps
SK Broadband	SKBIX	L3	24	3,471Gbps
LG U+	DIX	L3	18	4,430Gbps
KINX	KINX	L2	70	2,125Gbps

2. Interconnection Policy in Korea

- **Interconnection policy was established in 2005**
- **After extensive consideration on the telecommunication paradigm moving from voice to data, the policy has been reviewed and revised in 2016**
- **Wireless network(e.g. SK Telecom) is also included within the range of the policy**

'04. Jul	▶	High-speed Internet classified under telecommunication
'05. Jan	▶	**Introduction of Interconnection policy**
'13. Feb ~'14. Apr	▶	Formation of Task Force for improvement of Interconnection policy (10 telecommunication operators including KISDI, ETRI, KT)
'14. Jul	▶	Announcement for revision of Interconnection rule
'14. Nov	▶	**Announcement of revision of Interconnection policy**
'15. Feb ~'15. Nov	▶	Discussion on tier distinctions, calculation of interconnection rates among operators
'16. Jan	▶	**Implementation of Amendment regarding Interconnection** **※ Re-evaluation of interconnection rates will occur every other year**
'18. Jan	▶	**New interconnection rates and 'special clause' went into effect**

3. Revision of Interconnection Policy in Korea

과학기술정보통신부
Ministry of Science and ICT

- **Revision of Interconnection Policy**

  ✓ **Purpose**

  ❖ **In response to the increase in internet traffic, establishing a settlement system based on actual traffic volume and encouraging the market to have a fair competition among market participants in the ecosystem.**

  ✓ **Expectation**

  ❖ **To attract investment in telecommunication infrastructure by providing opportunities to ISPs to move up to higher tier**

  ❖ **Foster fair competition : prevent arbitrary measures by higher tier ISPs**

3. Revision of Interconnection Policy in Korea

▪ Changes of Interconnection Policy

	Before	After
Classification	No	Tier
Charge scheme	Bandwidth (bps)	Traffic (Byte)
Rule of Purchase	Settlement-free among the same tier	Mutual settlement (Senders Pay)
Rates	No control	Price Ceiling

✓ **Change to Calculation method of Interconnection Rate**

- ❖ **Settlement-free among same tier (free competition w/ no control)-> "Mutual settlement"**
- ❖ **Unit of measurement : Bandwidth (bps) -> Traffic (byte)**
- ❖ **Adoption of SPNP (Sending Party Network Pays) policy**

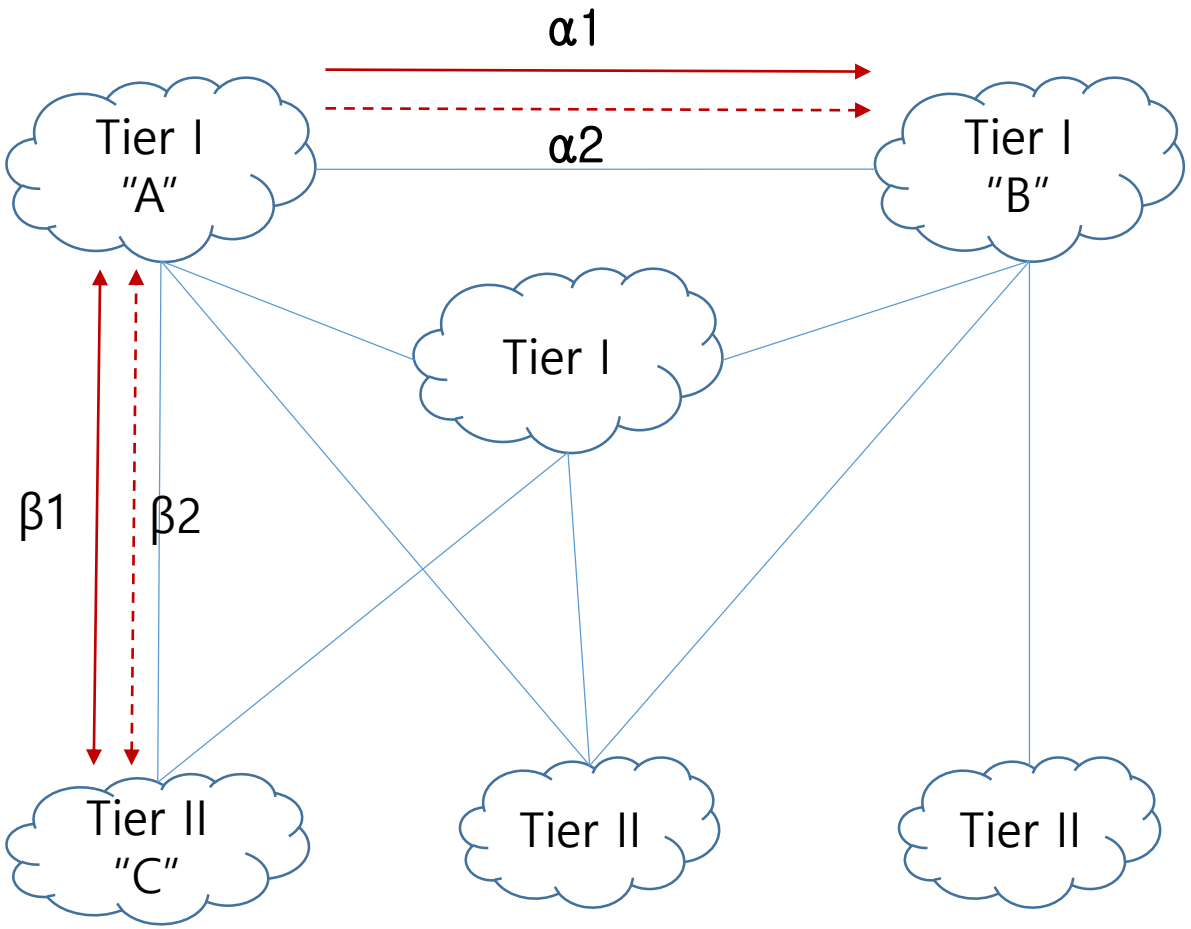
✓ **Re-evaluation of standard interconnection condition and tier distinction**

- ❖ **Method : absolute -> relative evaluation**
- ❖ **Evaluated by the government**

✓ **Wireless internet (Mobile) is included in the interconnection policy**

3. Revision of Interconnection Policy in Korea

- **Tiers mechanism of the revision**



Type	Definition	
α1	Between same tier	Tier 1 (on-net) -> Tier1
α2	Between same tier	Tier1(from Tier2) -> Tier1
β1	Between different tier	Tier2 -> Tier1
β2	Between different tier	Tier2 -> Tier1(Tier1)

Tier	ISP
Tier I	KT
	SKB
	LGU+
Tier II or lower	Dreamline
	Sejong
	SKT (Mobile)
	MSO

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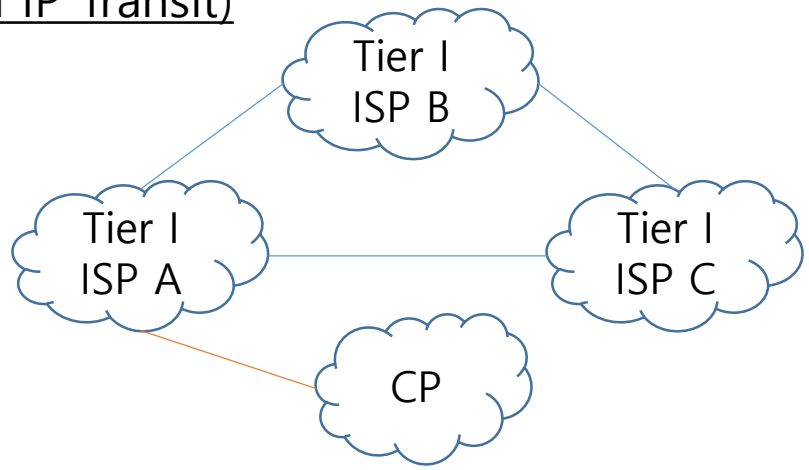
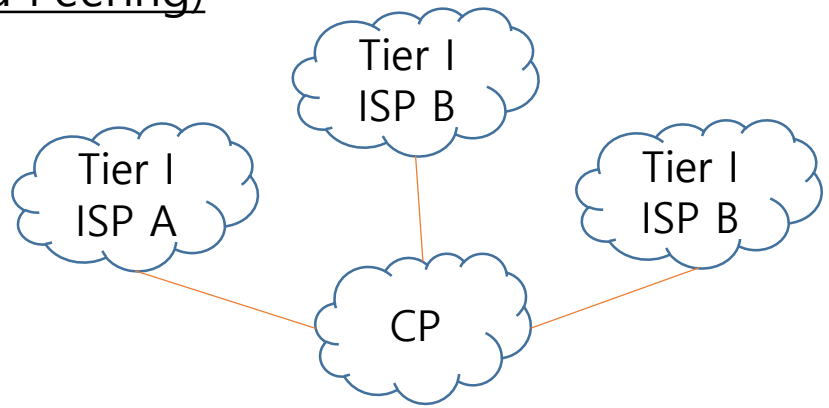
3. Revision of Interconnection Policy in Korea

- **Impacts on ISPs and Content Providers**

Before (Full IP Transit)



Recent (Paid Peering)



- What "Sender pays" policy led to…

- The more CP customers that the ISP has, the more they have to pay to the other ISPs.
- ISPs became passive to provide IP transit to CPs.
- ISPs induce CPs to buy "Peering" which means there is no competition.
- The cost of "Peering" and "IP transit" has risen higher than before

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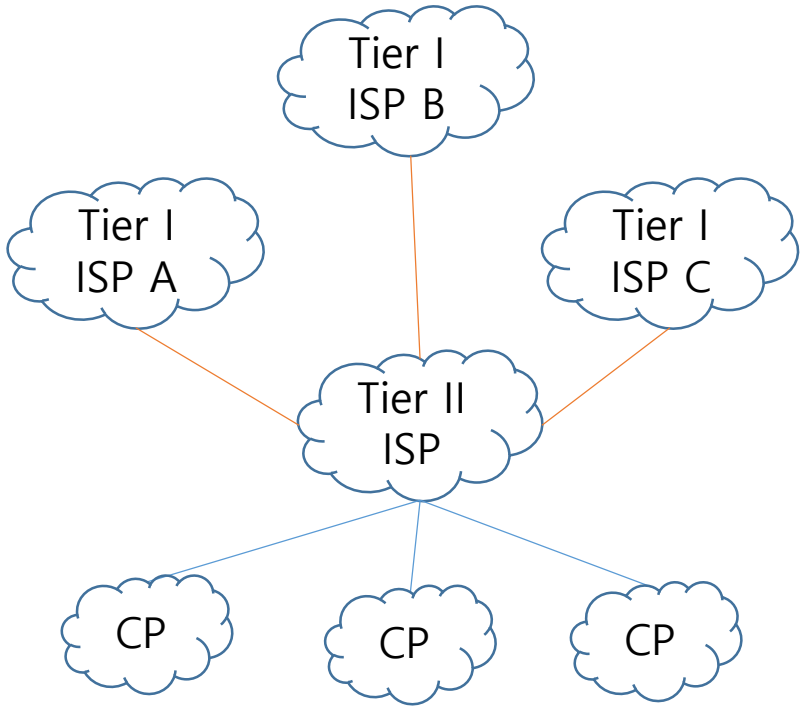
3. Revision of Interconnection Policy in Korea

- **Impacts on Lower Tiers by the change of charge scheme from bandwidth basis to traffic basis.**



- Lost the ability to utilize their uplink bandwidth (Egress/Ingress)
- Tier II ISPs no longer can compete with Tier I ISPs in terms of attracting CPs in their network.

3. Revision of Interconnection Policy in Korea

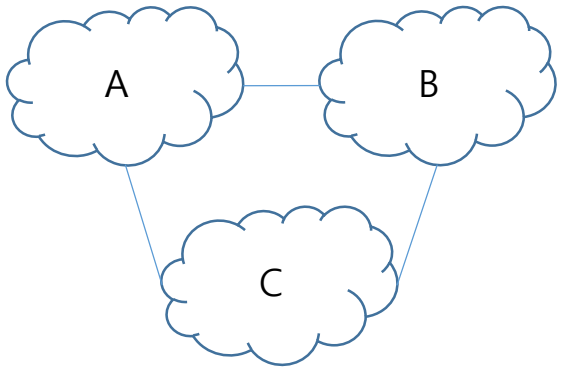
- **Interconnection Rate Changes by the government**

  - a higher rate reduction of up to 30% in 2020

Unit : KRW / Tbyte
USD 1 = KRW 1,200

Type	'16	'17	'18	'19	'20	'21
α1	31,910	29,587	25,622	22,189	N/A	
α2	45,438	42,130	36,485	31,596		
β1	18,783	17,416	15,082	13,061		
β2	48,439	44,897	38,881	33,671		
Rate reduction	-7.3%		-13.4%		Up to 30%	

  - Increase the traffic ratio that is settlement-free among the same tiers from **1:1.2 to 1:1.8**



	A-B	A-C	B-C
'19 Q1	1.02	1.46	1.17
'19 Q2	1.09	1.33	1.03
'19 Q3	1.16	1.29	1.11
'19 Q4	1.26	1.33	1.12
'20 Q1	1.33	1.07	1.25

3. Revision of Interconnection Policy in Korea

- Issues

Free Ride	✓ An issue raised by an ISP that large content providers are "free riding" on their network although there are required upgrades costs to accommodate the tremendous amount of traffic.
New statement	✓ It is not only the ISPs but also large CPs are now in charge for service quality. (any CPs that have over 1 million people per day AND 1% of the total traffic in Korea)
Reverse-discrimination	✓ Due to the new statement on service quality responsibility to both ISP and CPs, domestic CPs raised their concerns that this will lead to a reverse discrimination as there is no specific way to enforce these responsibilities on foreign companies. This statement will cause the major ISPs to have a more dominant control of the market.

4. Conclusion

- Situation will become settled gradually as it was before the revision took place (e.g. 1:1.8 rule).
- However, due to the issue of upgrading bandwidth among the ISPs, IP transit market still may not be easy.
- The price of domestic IP transit is now about the same as the price of international IP transit. This will lead to one integrated price for both domestic and international IP transit whereas it was separated before.
- The movement of the Korean internet market has proved and highlighted the importance of peering.

WHERE YOUR CONNECTION BEGINS

THANKS

for your attention

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