



# SK Telecom's View on Future Telco. Infrastructure

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3GPP SA1#106 in Jeju, KR

**S1-241015**

**SK Telecom**

**May. 27-31, 2024**

## **I. Introduction**

**① Expectation of 6G era**

**② Approach for 6G**

## **II. Fundamental Motivation**

**① Telco AI Infra (Edge AI)**

**② Generation mix**

**③ Killer Service & Innovative device**

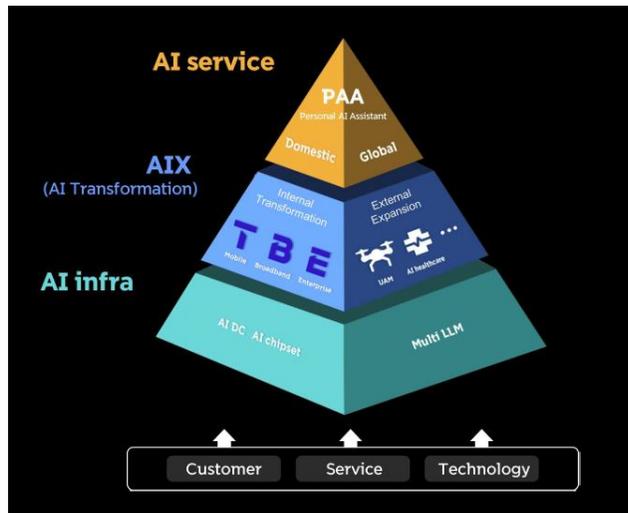
**④ Core Network**

## **III. Proposals for Next steps**

## AI services & further monetization should be considered for 6G evolution

### Infra for AI and Monetization

- AI becomes mega trend as shown in recent CES/MWC
- 6G should be fundamentally designed to support emerging AI services
- 6G should offer monetization opportunities for MNOs through groundbreaking AI services



[AI Pyramid Strategy by SK Telecom]

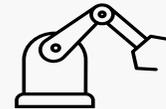
### New business opportunities with AI (Exemplary)

#### Autonomous



- Faster and Accurate Decision with Real-time data

#### Factory/ Robots



- Intelligent Remote Control
- Sensitive data with LLM

#### Logistics



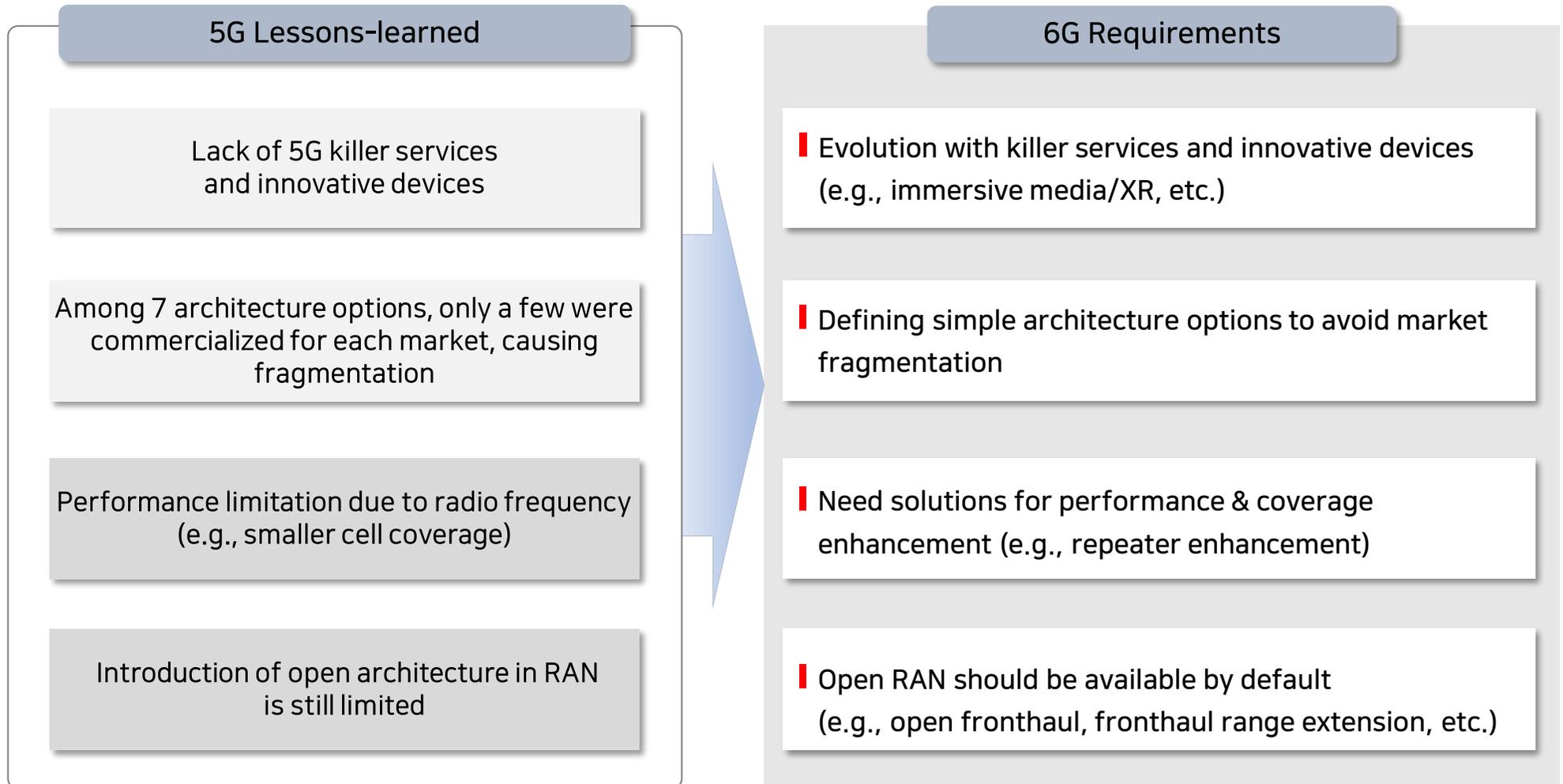
- Route Optimization
- Object Detection

#### Healthcare

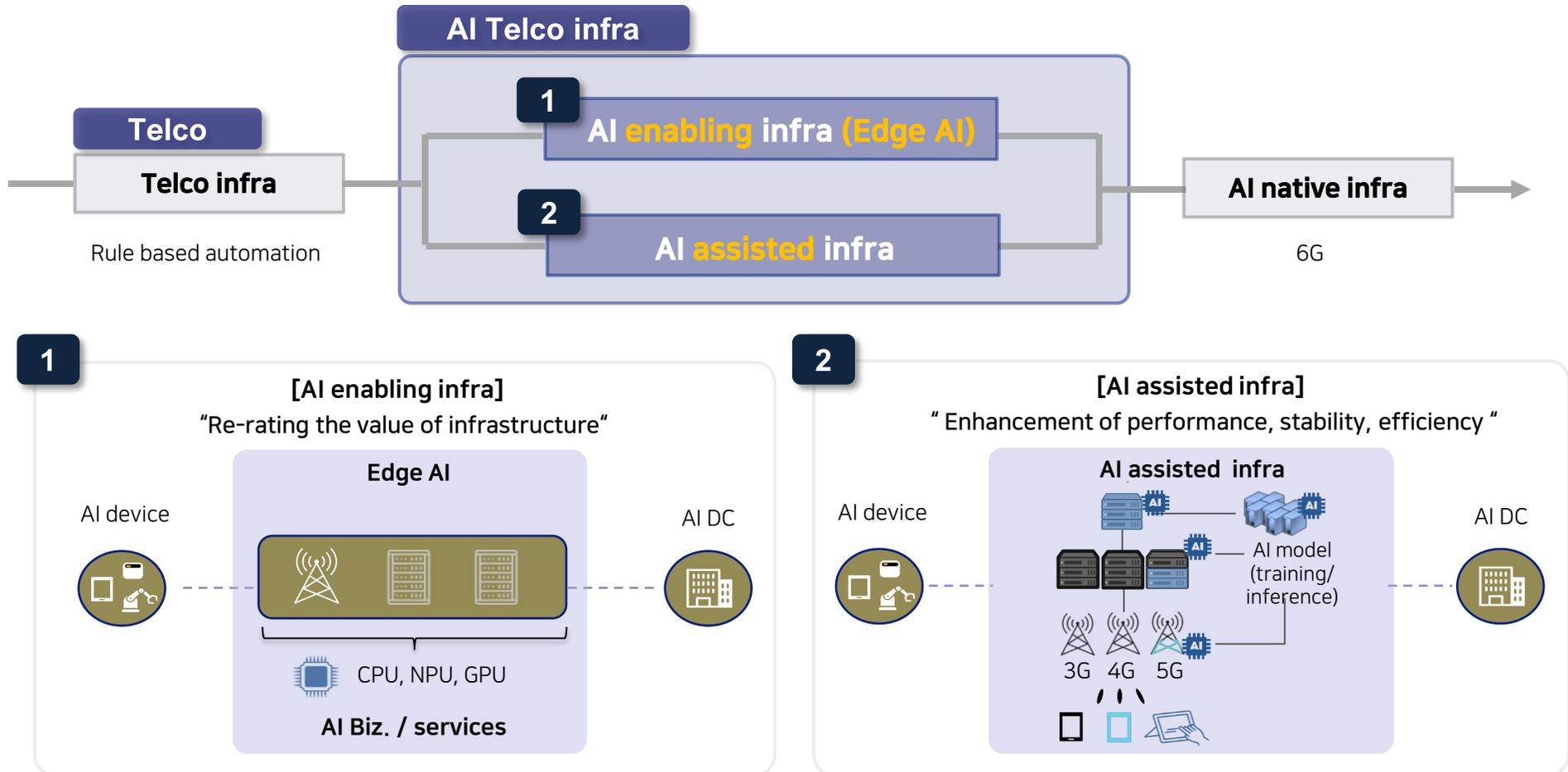


- Telemedicine
- Private Medical Data with LLM

### SKT has derived requirements based on 5G lessons-learned and Infrastructure evolution



As AI holds significance in both AI assisted infra and AI enabling infra, **Edge AI** works an opportunity for monetization as well as improvement of infra performance



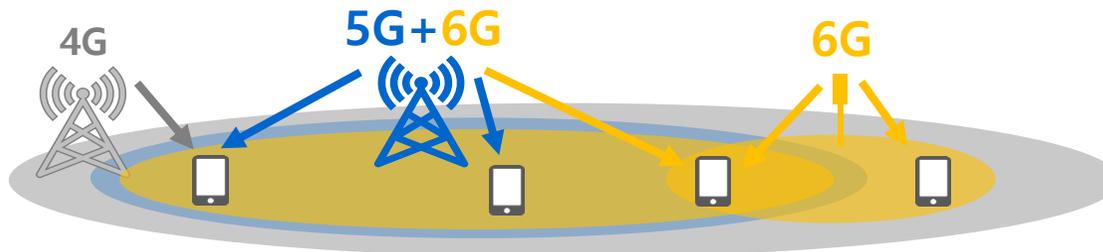
**With the uncertainty about services and data traffic, various migration options should be explored, taking into account “Generation Mix” strategy**

### ○ 6G service/traffic demands and migration options

- Innovative devices & services will be proposed for 6G, but service/traffic demand forecasts are unclear for now
- 6G migration plan needs to consider service/traffic demands for sustainable network operations
  - ✓ Service/traffic demand is *not* expected to increase significantly : **Generation Mix** (6G builds upon, and extends existing generation and is deployed for specific use cases, e.g., hotspot) can be considered
  - ✓ Service/traffic demand is expected to increase *significantly* : **Generation Change** (6G will eventually replace existing generation and become widely adopted, e.g., nationwide coverage) can be considered

### ○ Migration option examples

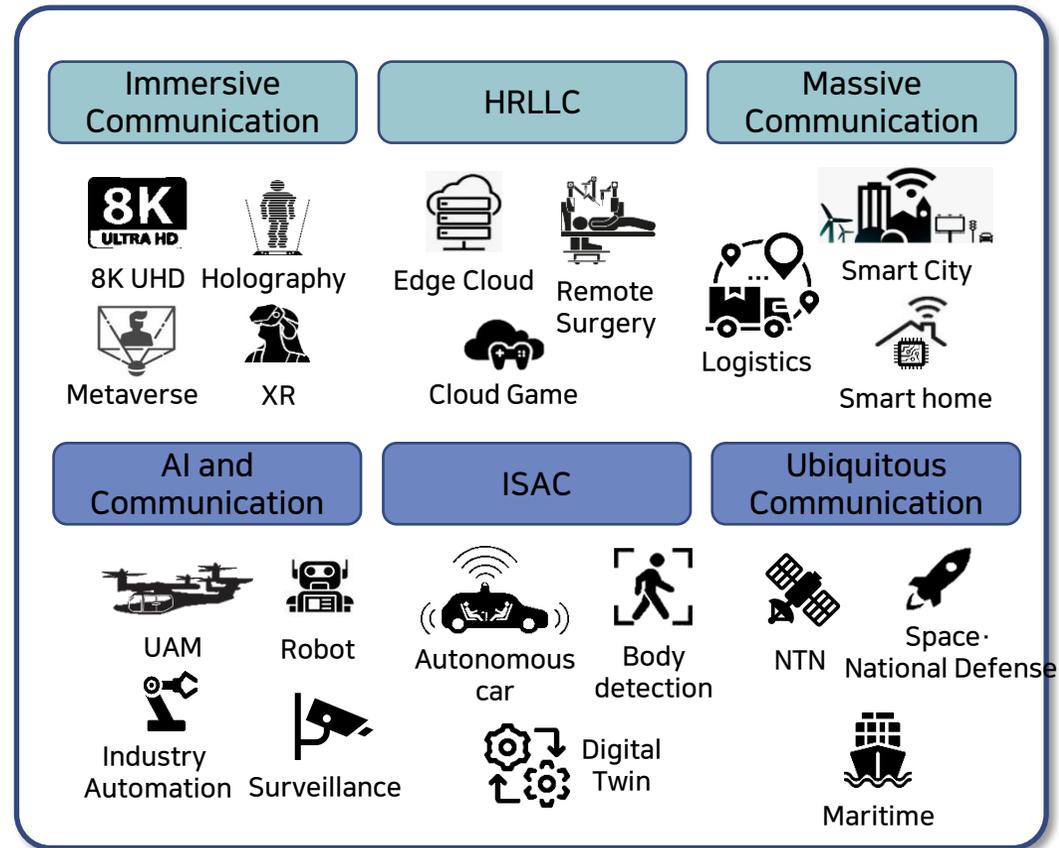
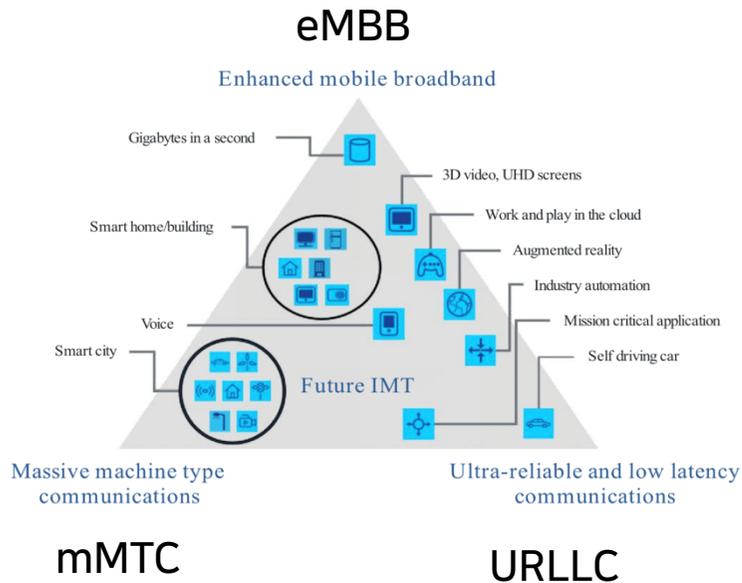
- 6G MRSS, 6G SA Option 2/4, 5G-6G NSA, Dual-Stack, QoS provisioning, inter-RAT mobility for TN/NTN, etc.
- Need to consider coverage and capacity requirements according to service/traffic demands



[Deployment Scenario by Generation Mix (Exemplary)]

- 4G/5G: QoS based services focusing on coverage and capacity
- 6G : Specialized services, such as sensing

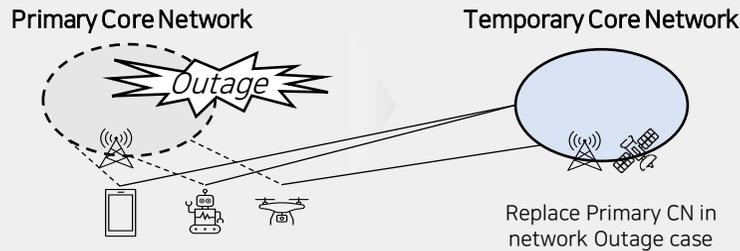
**Timely resonance between innovative devices/services and network requirements will be the key momentum for 6G evolution**



## 6G should support more intelligent AI/Cloud/Energy-related core network

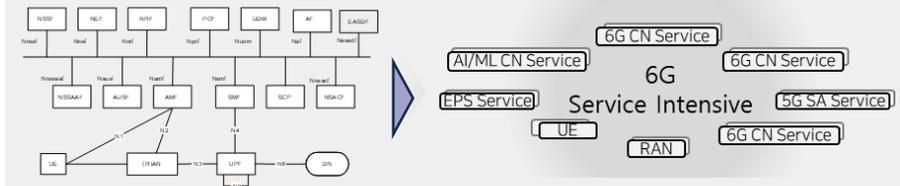
### Robust / Disaster Resilience Core

- Study for enhanced disaster recovery of network, including temporary authentications



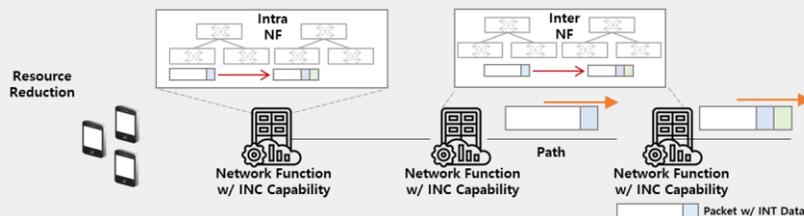
### Service Intensive Architecture

- Study for the 'service-intensive' to reduce NF dependencies and expand eSBA domains



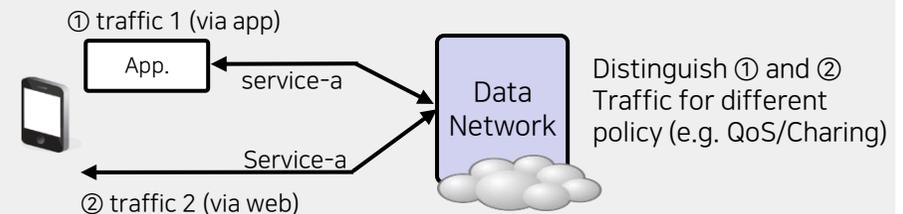
### In-Network Computing

- Resource offloading (e.g. HW offloading) to support various computing resource usage scenarios for AI/Cloud based services..



### Intelligent Traffic Management

- Network will enhance traffic visibility for various emerging/encrypted applications



### III. Proposals for Next steps

#### **SKT recommends to align with our perspectives and to prioritize the technological study especially on Proposal #1, #2 and #4**

##### [Proposal #1] – II. Fundamental Motivation-①

Standardization activity for supporting evolution to Telco AI (Edge AI) infra should be included in the 6G scope

- e.g., Architectural changes, Tailored interfaces, and etc.

##### [Proposal #2] – II. Fundamental Motivation-②

From the beginning of 6G, "Generation Mix" should be taken into consideration

- e.g., Targeted technology like multi-RAT interworking, ran sharing, QoS provisioning, aligning to traffic demand and emerging SLA by new service/device availability

##### [Proposal #3] – II. Fundamental Motivation-③

Collaboration among all eco-players for evolution of 6G killer services and devices

- e.g., Customers (*Social demand for new services*), Telcos (*Smooth & Timely migration to 6G*), Manufacturing (*Evolution of fundamental technologies*) and related ICT Industry (*New Service, BM*)

##### [Proposal #4] – II. Fundamental Motivation-④

Standardization activity for exploring uses cases and requirement for 6G Core Network



**AI service**

**AIX**

**AI infra**

# Global AI Company

**SK telecom**

**40**  
SK Telecom  
40th Anniversary  
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