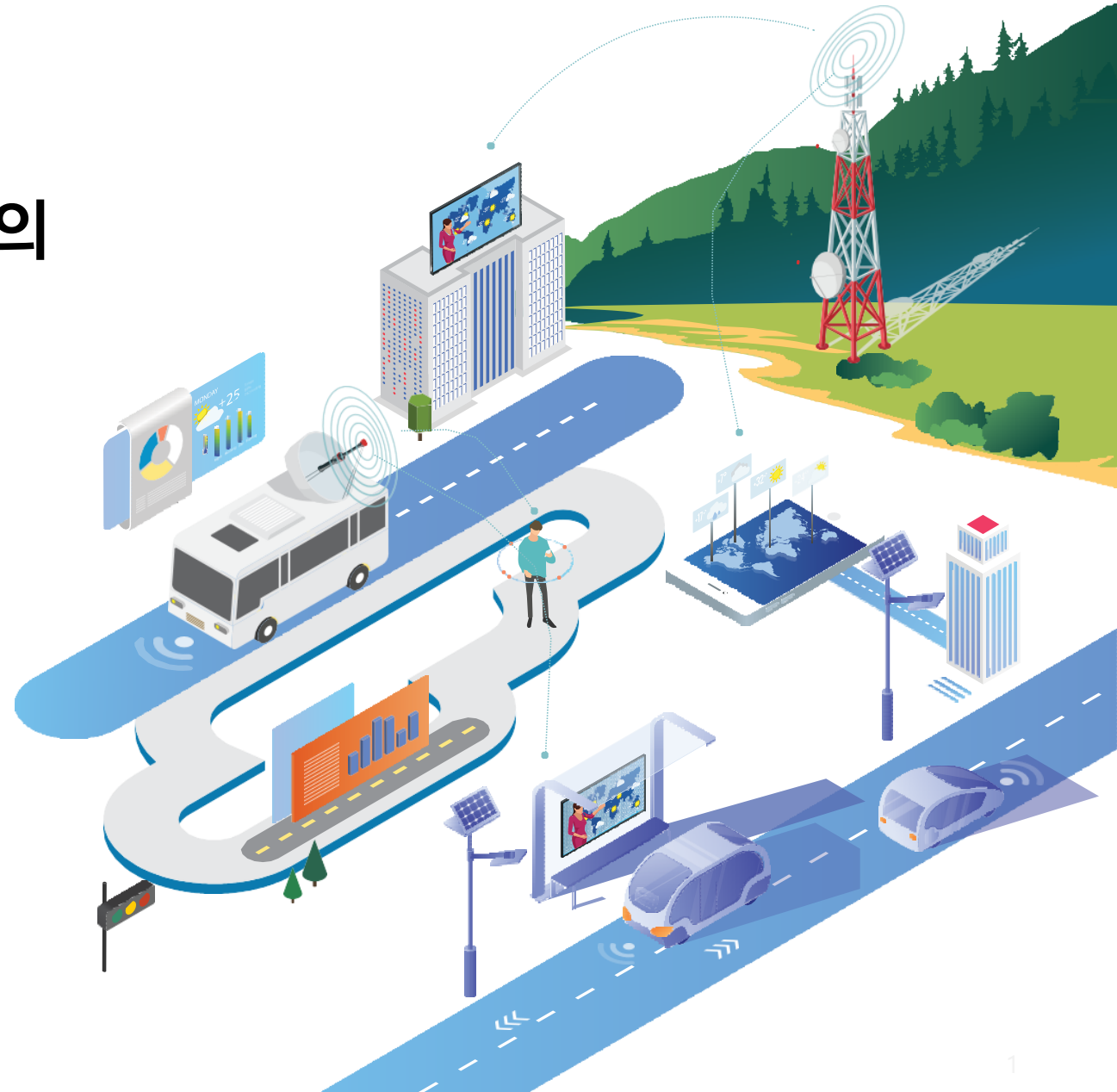


클라우드 기반 입체 미디어 서비스의 안정적인 방송 시스템 구축

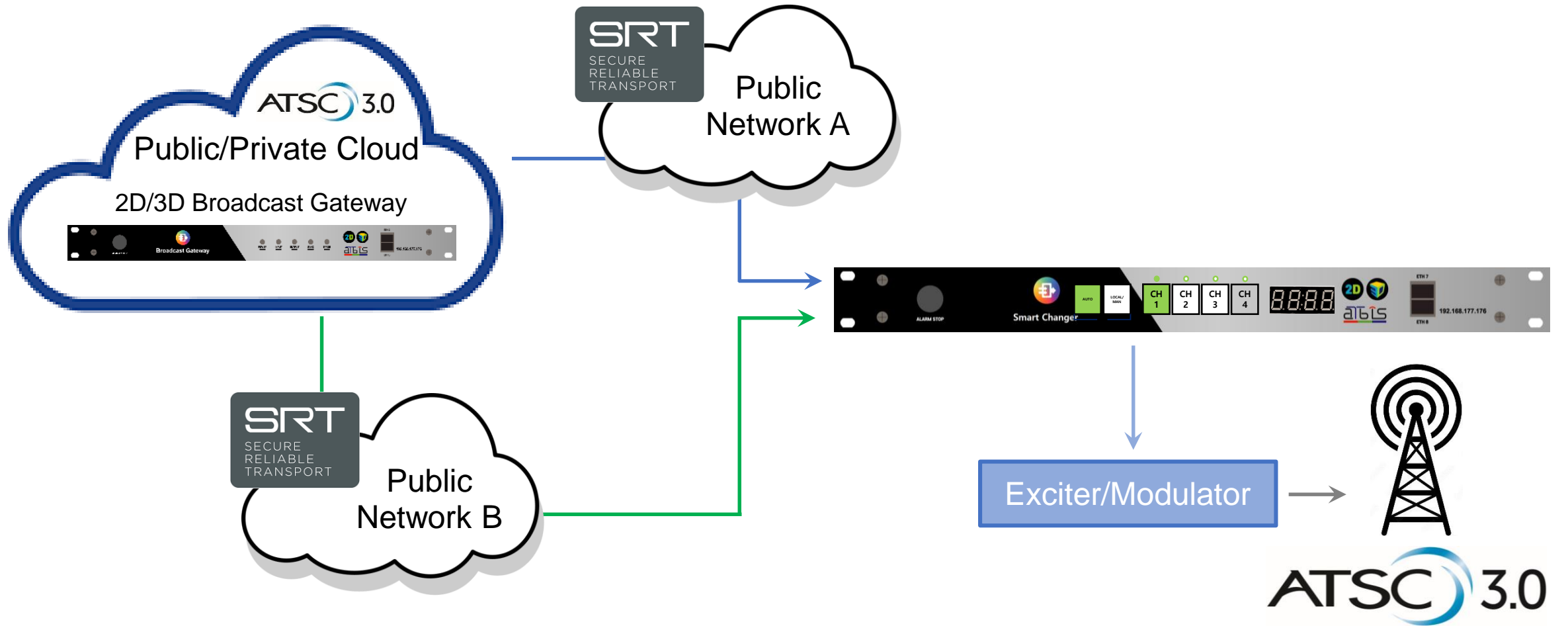
(주)에이티비스
단현석 연구소장

ETRI
김성훈
리브LS

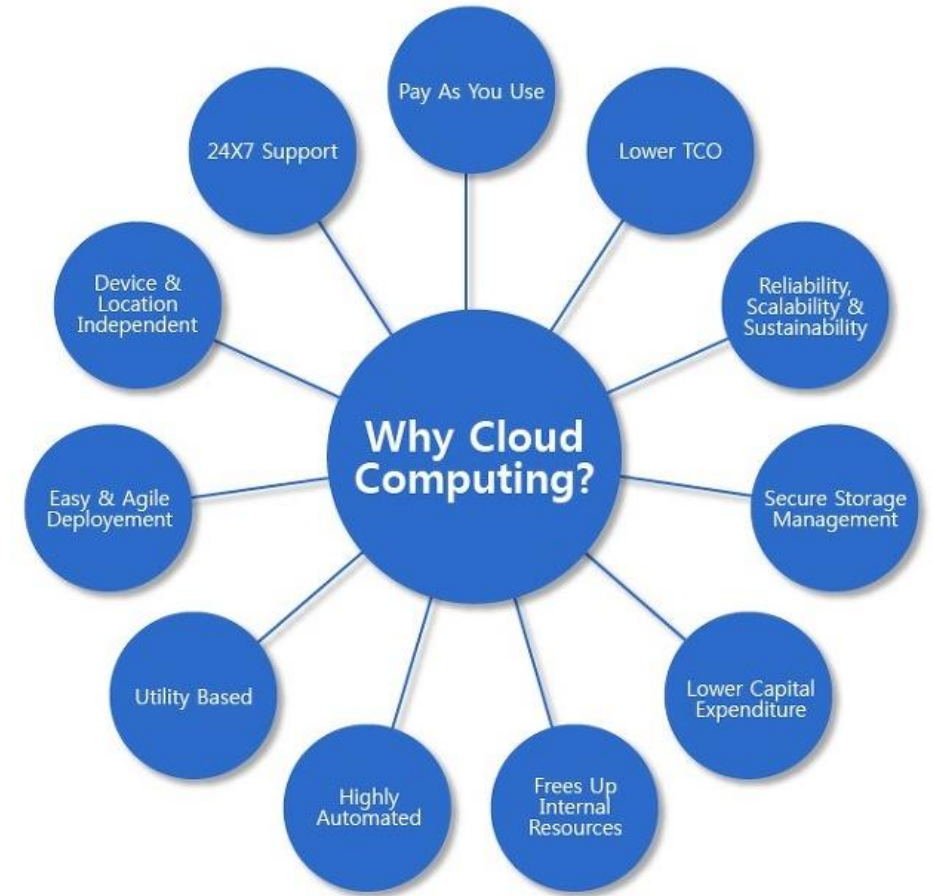


1

방송 송출 시스템 구성

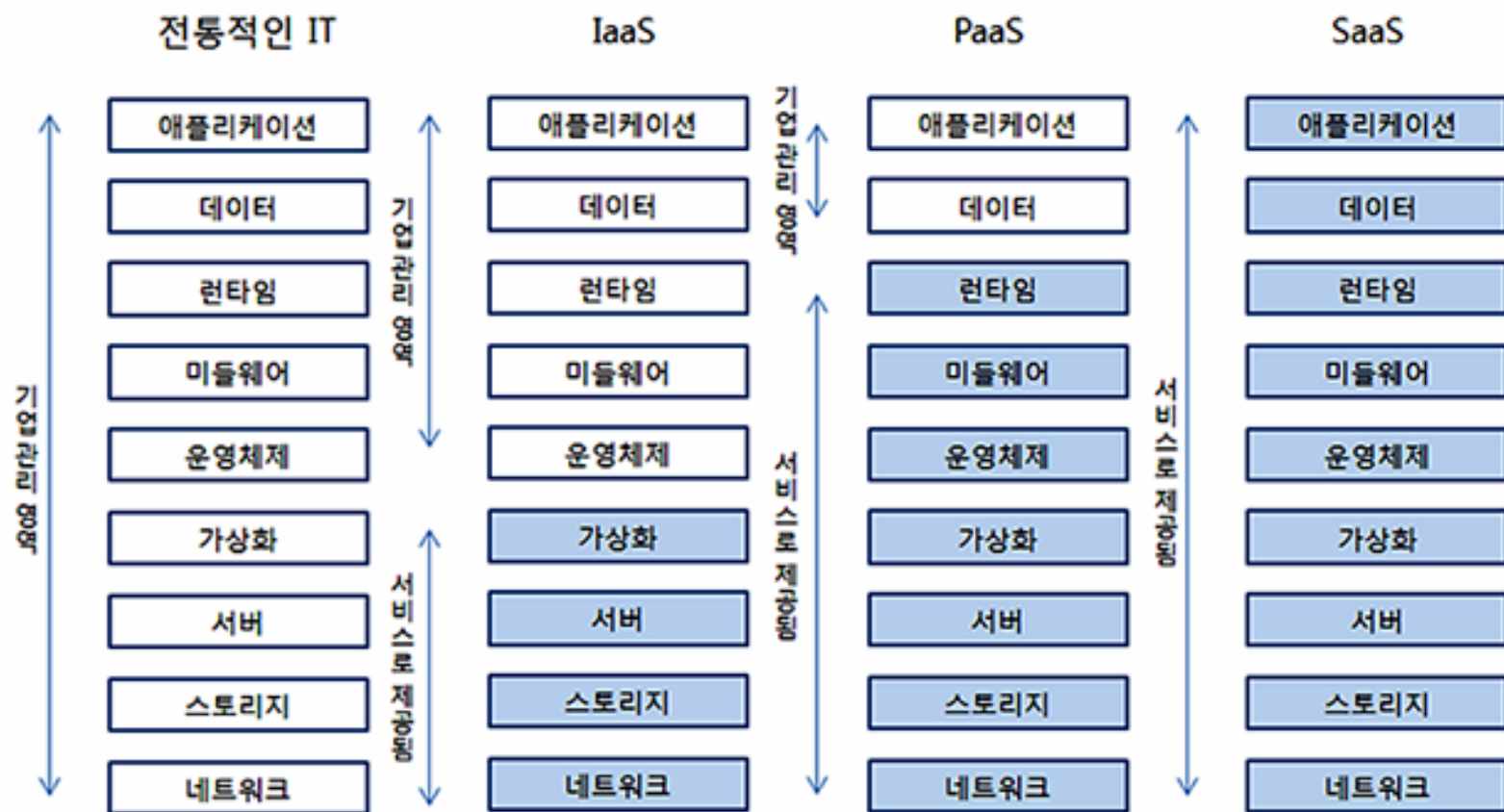


- 사용자 인터페이스를 제외한 모든 컴퓨팅 자원은 인터넷 클라우드에 존재 (ICT as a Service)
- 가상의 하드웨어를 쉽게 구축하고 없앨 수 있어 기민성의 뛰어남
- 필요한 만큼만 사용할 수 있으므로 비용 절감에 유리
- 거의 대부분의 관리기능을 서비스 제공자가 제공하기 때문에 관리가 용이
- 리소스를 사용자가 원하는 대로 조절 가능하므로 확장성이 뛰어남



3

클라우드 시스템의 종류



Broadspan Datacasting Platform

BRADSPAN WIRELESS

Broadspan combines business insights, broadcast spectrum, and distribution technology from across the broadcast industry to deliver a unified suite of ATSC 3.0-enabled broadcast data solutions to the market.

Global Data Consumption (in zettabytes)

Year	Actual	Forecast
2018	33	-
2020	64	-
2022	97	-
2024	-	147
2025	-	180

THE NEED FOR ATSC 3.0 DATA DISTRIBUTION

Connected devices worldwide are growing rapidly and data consumption is surging – complementing unicast cellular and broadband networks with the one-to-many efficiency of broadcast data distribution offers several benefits:

- More efficient distribution of mass-consumption data
- Improved customer experience with fewer disruptions, lower latency, and higher content quality
- Lower cost for data delivery as compared to cellular or broadband

LEVERAGE OUR SERVICES FOR YOUR BUSINESS NEEDS

- Streaming Video Offload**
Seamlessly switch between OTA and OTT content sources within an OTT application to offload bandwidth-intensive OTT streaming traffic from congested broadband networks
- Automotive Connectivity Services**
Distribute content to vehicles via ATSC 3.0 to differentiate connected car solutions with OTA updates, live broadcast & alerts, and curated audio
- Precision Navigation**
Achieve up to 3 cm GPS accuracy by augmenting vehicle GPS location data with RTK error correction feeds
- Other Services**
Enable a multitude of additional use cases such as digital signage solutions, TV Interactivity, first responder communications, and more with broadcast data distribution

THE ATSC 3.0 DATA DISTRIBUTION OPPORTUNITY IS NOW

Our Partners

Scan for more information

BRADSPAN WIRELESS

OUR NAB 2024 DEMOS

Data Distribution Platform Demo

- Broadcast technology platform that enables nationwide data distribution services
- Centralizes data distribution management across multiple stations and markets
- Schedules and allocates spectrum assets for data distribution services without disruption to existing broadcast services
- Orchestrates and instructs air chains to execute on data distribution requirements
- Collects insights on executed data distributions

Automotive Connectivity Services

- Connected car services capitalizing on broadcast's one-to-many efficiencies to provide low-cost solutions that enhance the customer experience
- Efficiently distribute OTA software updates to a fleet of vehicles or devices by transmitting compressed, encrypted files OTA through ATSC 3.0
- Deliver High-Fidelity audio content to vehicle sound systems with enhanced audio bit rates and format

Streaming Video Offload

- In partnership with a Edgio, Sinclair is launching a new content distribution service that combines OTT and OTA distribution of live streaming events
- Delivery of higher quality content streams (up to 4K) with lower distribution costs
- Enhanced viewer experience with broadcast network resiliency
- Offload of bandwidth-intensive streaming video traffic from congested data networks

5

Gateway on Cloud



- Software Define Ethernet interface for control and data transport
- Multi Sub-frame & Multi PLP (TDM/FDM/LDM) support
- STL-TP with L1 / L2 (LMT) signal generation support
- ALP packetizing support for general IP data input
- DSTP/ALP-TP input stream support
- IGMPv3 SSM support
- Transmitter Emission time offset support for SFN control
- Input stream bitrate monitoring and alarm support
- STL-TP ECC (SMPTE 2022-1) support for transmission error correction
- SRT Output Support
- External clock (PTP, NTP) support
- User-friendly WEB UI control use with standard web browser

6

SRT(Secure Reliable Transport)

- 안정성

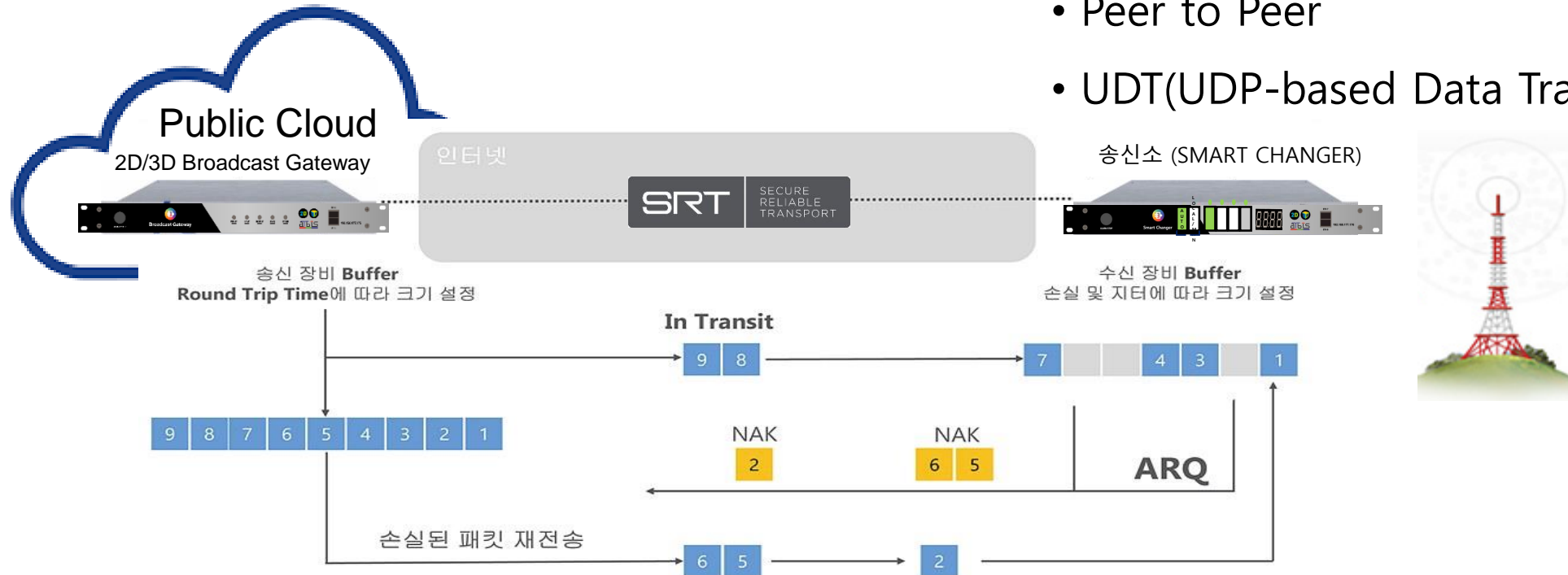
- FEC(Forward Error Correction)
- ARQ(Automatic Repeat-reQuest)

- 보안

- AES(128/256 bit AES 암호화)

- 저지연

- Peer to Peer
- UDT(UDP-based Data Transfer)



Smart Changer SRT 적용 효과

- 안정적인 장거리 전송 가능
- 전용선 대비 저비용으로 구축 및 유지보수
- 이중화를 넘어 다중화를 통한 콘텐츠 서비스 전송의 안정성 확보
- ATSC3.0 기술의 복잡도 상승에 따른 ATSC3.0 Smart Changer의 상용화 필요
- ATSC3.0 관련 제품 개발 노하우를 이용한 SFN Seamless switching

8

Smart Changer

- Operation MODE : Auto, Manual
- Input : 4 IP signals (Public Network, Microwave, Fiber optic etc.)
- Output : 2 IP signals (STL-TP)
- Supports SMPTE 2022-1 (FEC)
- Supports SFN Seamless switching
- Input Priority Auto Select and Manual Priority
- Input Signal Monitoring for Network delays and Packet Loss
- Easy to use via Web GUI and Front Panel Controls
- Supports SRT Receive
- Supports 7 x Gigabit Ethernet
- External Clock : GPS, PTP



Thank you