



# SK 텔레콤 SDN/NFV 추진전략

SDN/NFV 포럼

1<sup>st</sup> October, 2014

**Jin-Hyo Park,**

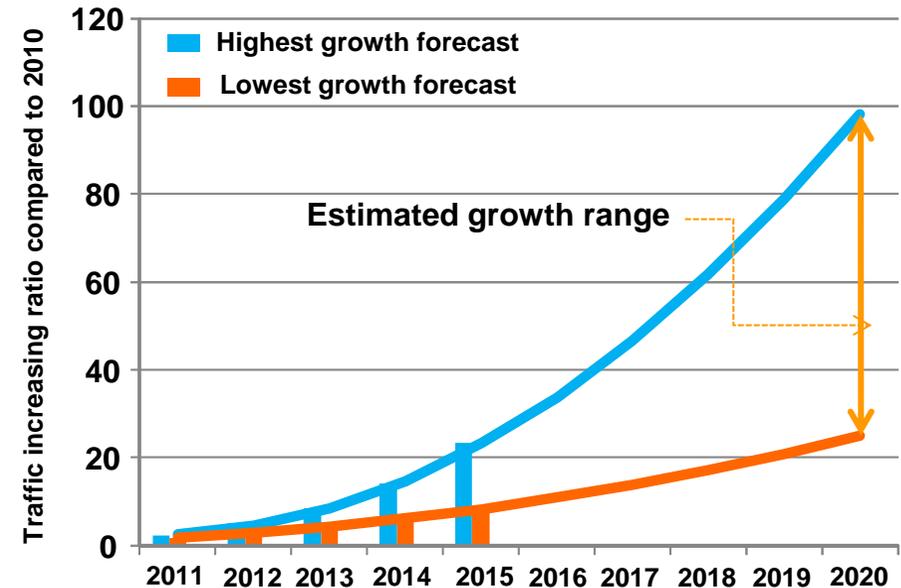
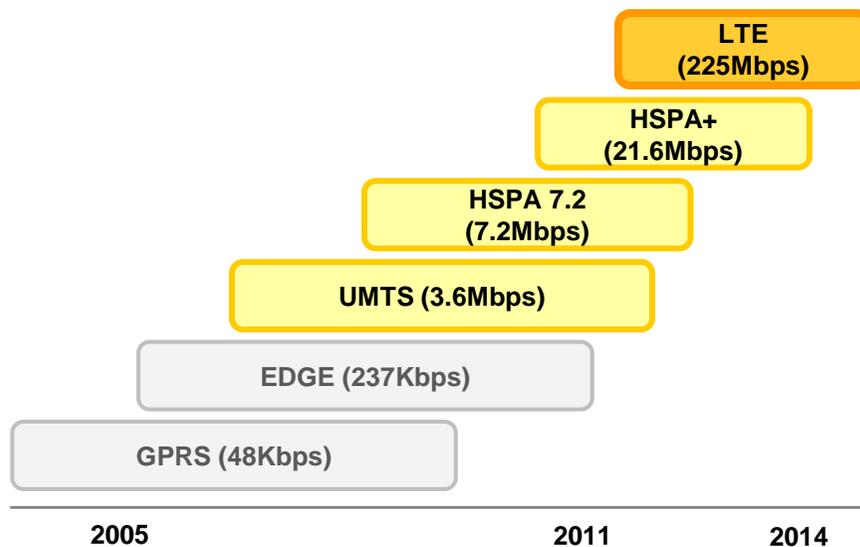
Senior Vice President

Head of Network R&D Center, SK Telecom



Partner for New Possibilities

Ever-increasing demand for higher traffic volume, speed, and versatility drive revolutionary changes in mobility network architecture, especially in RAN



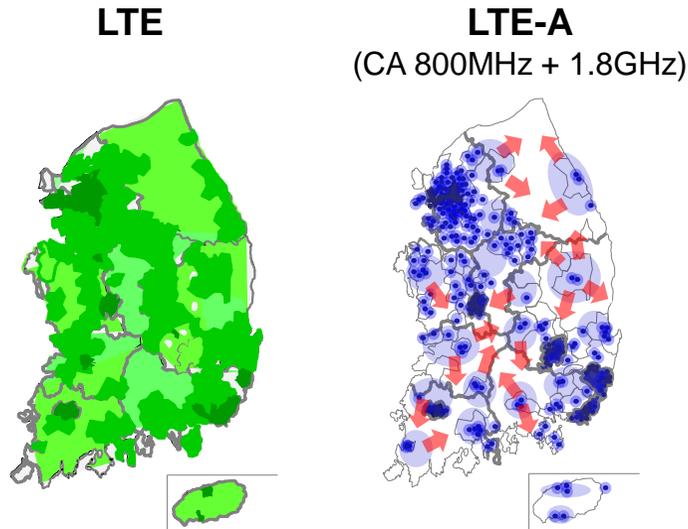
- **Mobile Broadband is the fastest growing ICT\***
  - 30% growth in subscriber count every year
  - # of mobile users > # of desktop users
  - Decreasing major technology life cycle
- ❖ **Significant gains so far, but reaching theoretical limits: “bps/Hz” is almost saturated**

\* Broadband commission annual report (September 2013)

- **The network is expected to grow at a fast rate\*\***
  - Forecasted to be from 11x to 100x by 2020
  - Emerging new applications and new devices accelerate the mobile data explosion
- **Very competitive market**
  - Demanding users

\*\* ITU-R M.2290 report (December 2013)

**Aggressive and continuous network expansion and architectural changes led to heterogeneous and complex network that is expensive and difficult to manage**

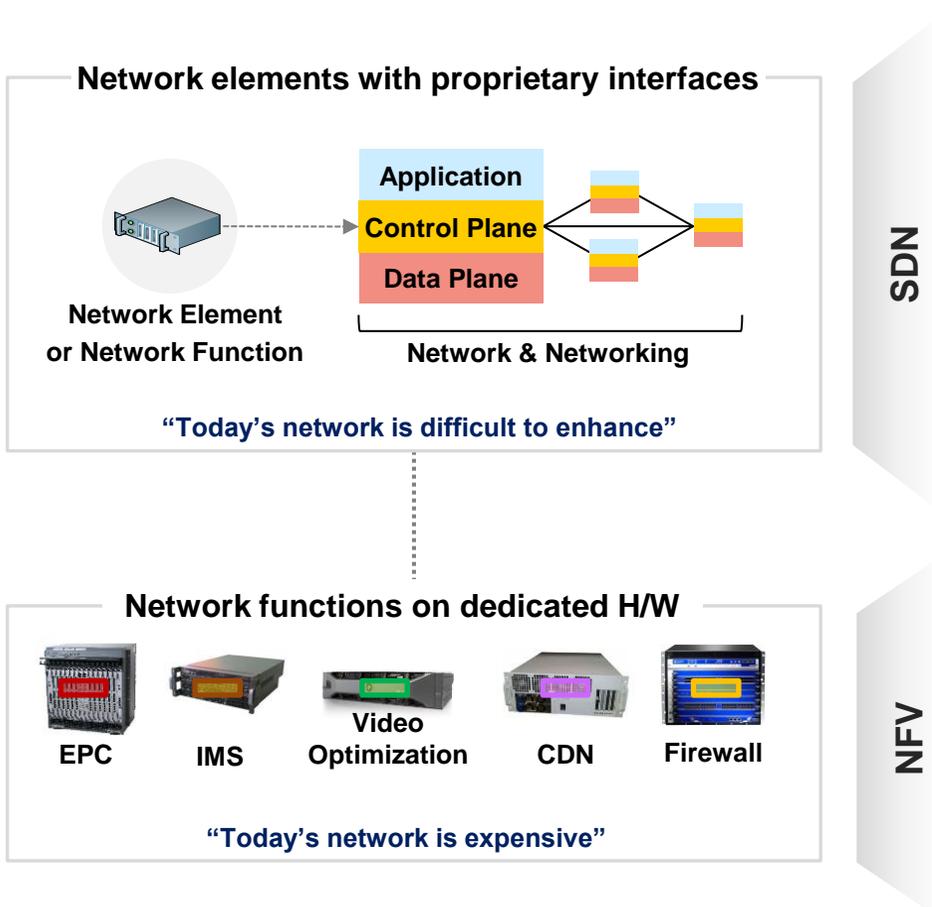


- **Aggressive network evolution and expansion**
  - Completed nation-wide 99% role-out of LTE
  - LTE-A covers major 84 cities (~13.8)
- **Topology reshaping with small-cells is on-going**
  - Needs huge amount of investments and time
  - Complexity grows tremendously

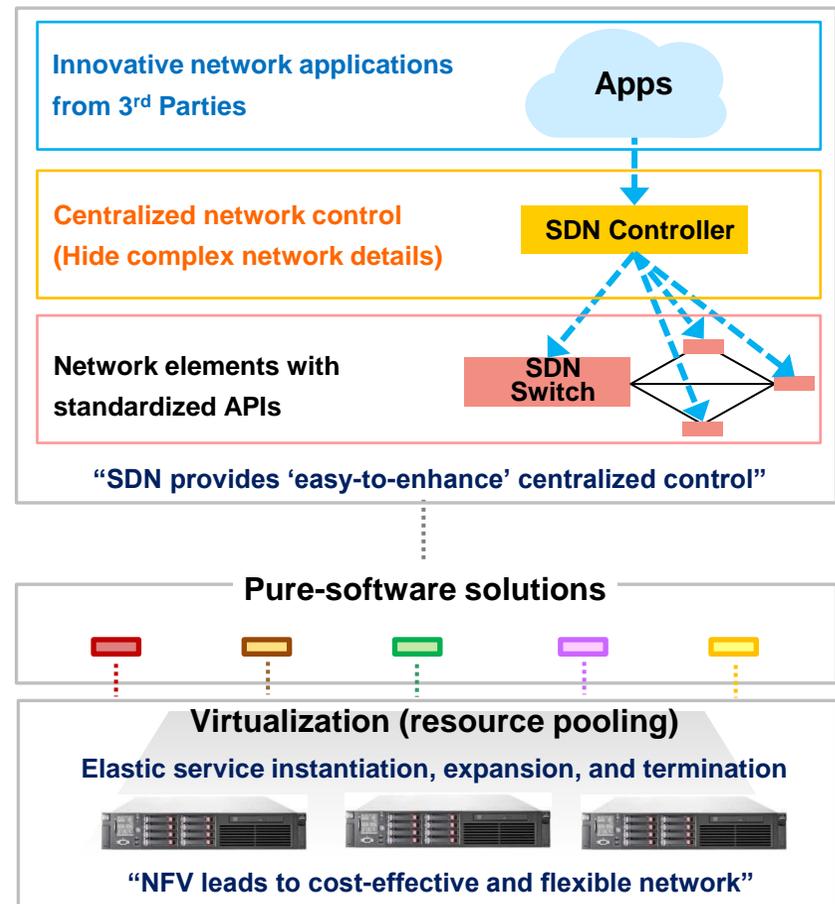
- **Total Cost of Ownership (TCO) is significant**
  - CAPEX and OPEX are to be \$37B and \$56B\*
  - ARPU stays about the same (or even decreases)
- **Time-to-market (TTM) has increased**
- **Other deficiencies were started to get exposed:**
  - Limited flexibility
  - Inefficient use of energy

**SDN and NFV complement each other to increase network agility, reduce costs, and can potentially create new eco-system for innovative network applications**

## Traditional Networks

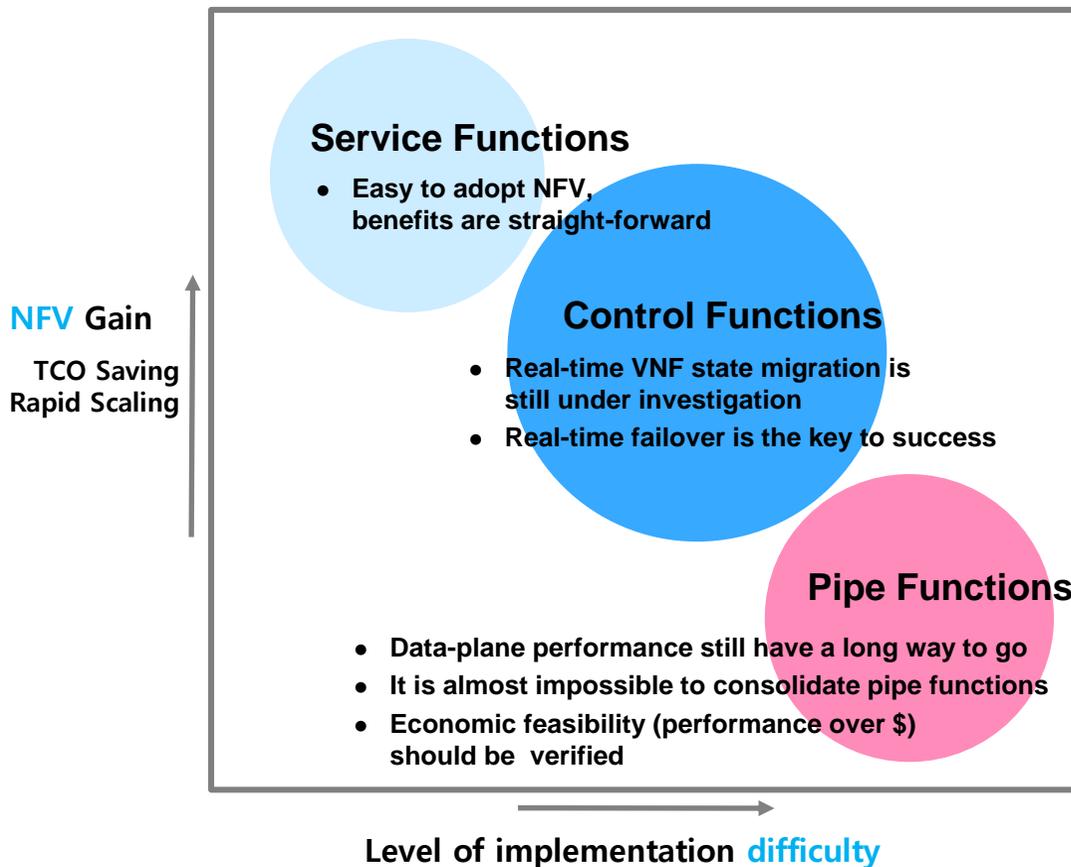


## Networks with SDN & NFV



**This new architecture is not yet fully accepted by the conservative operators  
A clear understanding of the dynamics and the interaction must precede**

## Lessons Learned



- **Physical appliances won't suddenly disappear**
  - Existing physical appliances are becoming more cost effective, while the cost of software function is not (yet) so attractive
  - ❖ Hybrid (mixed virtual and physical functions) network model must be considered
- **SDN and NFV concept is (still) a culture shock**
  - Much security, availability, and interestingly job-security concerns
  - ❖ Need more killer applications of SDN and NFV

- **Networking paradigm shift is just around the corner**
  - Against the ever-growing network complexity and user demands, Telco's today face yet another critical architectural challenge
  - SDN and NFV can potentially be the solution and more
  - SK Telecom is transforming the network in a cost-effective way for TCO reduction, service agility, and improved risk management by taking advantage of SDN & NFV
- **Mind the Gap**
  - The technology should address the real world MNO-specific requirements
  - Operators and vendors should work together to make the technology be fully qualified
- **SK Telecom's aggressive efforts in this domain will continue**
  - Lessons learned from Use Case Proof-of-Concepts and Pilots will be shared
  - Carrier-grade and innovative applications by 3<sup>rd</sup> parties must be encouraged and supplied in order to realize the "open" innovation

**Thank You**



**Thank you**