Is a Marketplace for NetApps a realistic business perspective ?

G. Xilouris
MediaNetworks Lab, National Centre of Scientific Research "Demokritos" (NCSRD)

Network Programmability Potential Benefits

	Essential	Important, But Not Essential	Useful, But Not Important	Not Important at All
Improved resource utilization	35.8%	42%	16%	3.7%
Enabling of service and network innovation	30.5%	46.3%	15.9%	2.4%
Enabling the deployment of lower-cost hardware	36.6%	39%	14.6%	4.9%
Reduced operational cost, especially in maintaining distributed equipment	41.5%	34.1%	18.3%	3.7%
Automation/service orchestration with increased service velocity	36.6%	39%	19.5%	3.7%
Coordination of carrier network resource assignments with IP/MPLS and DC networks	37%	38.3%	17.3%	4.9%
New services and services monetization	**39.5%**	**35.8%**	**17.3%**	**2.5%**

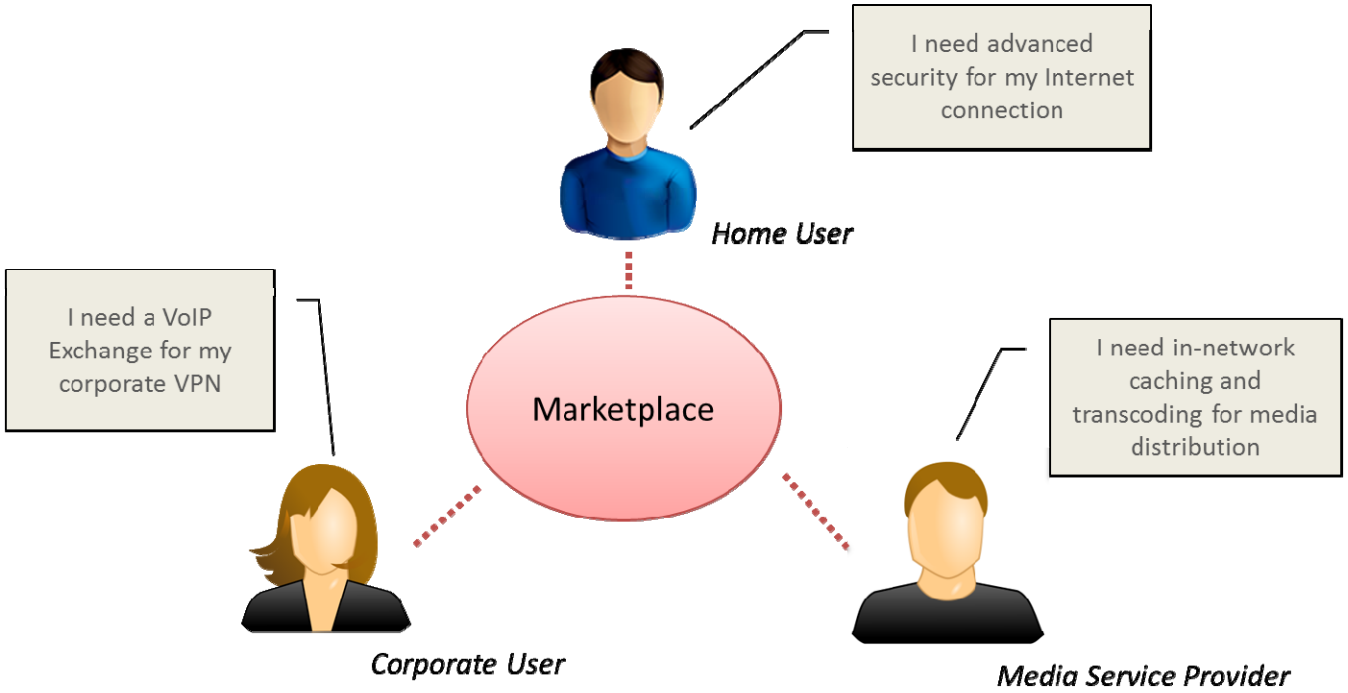
Note: Arranged in descending order based on percentages of "Essential" plus "Important"

Source: Heavy Reading Study of Network Operators, 2013

Opportunities for Operators

- **Faster Open Innovation** - embrace broad openness for development and consider creating open marketplaces for the promotion and sale of applications
- **Speedier certification of new applications and services** - support the fast on-ramping of new applications and services (operational wise)
- **Business model innovation and fast introduction of new revenue models** - include third parties, build on top of the ability to collect, analyze, and monetize data to support these new models
- **Use of analytics across the network -** lack of capabilities to process such large volumes of data can be turned into information that points to new monetization opportunities
- **Application and content user-friendliness** - shift towards user-friendliness based on tighter interaction between applications, data, and customers

Marketplace Concept



- Two Marketplace models can be envisaged
  - Customer is owner of the infrastructure – Marketplace offers the application
  - Operator owns the infrastructure – Marketplace offers the composed service (connectivity + VNF)

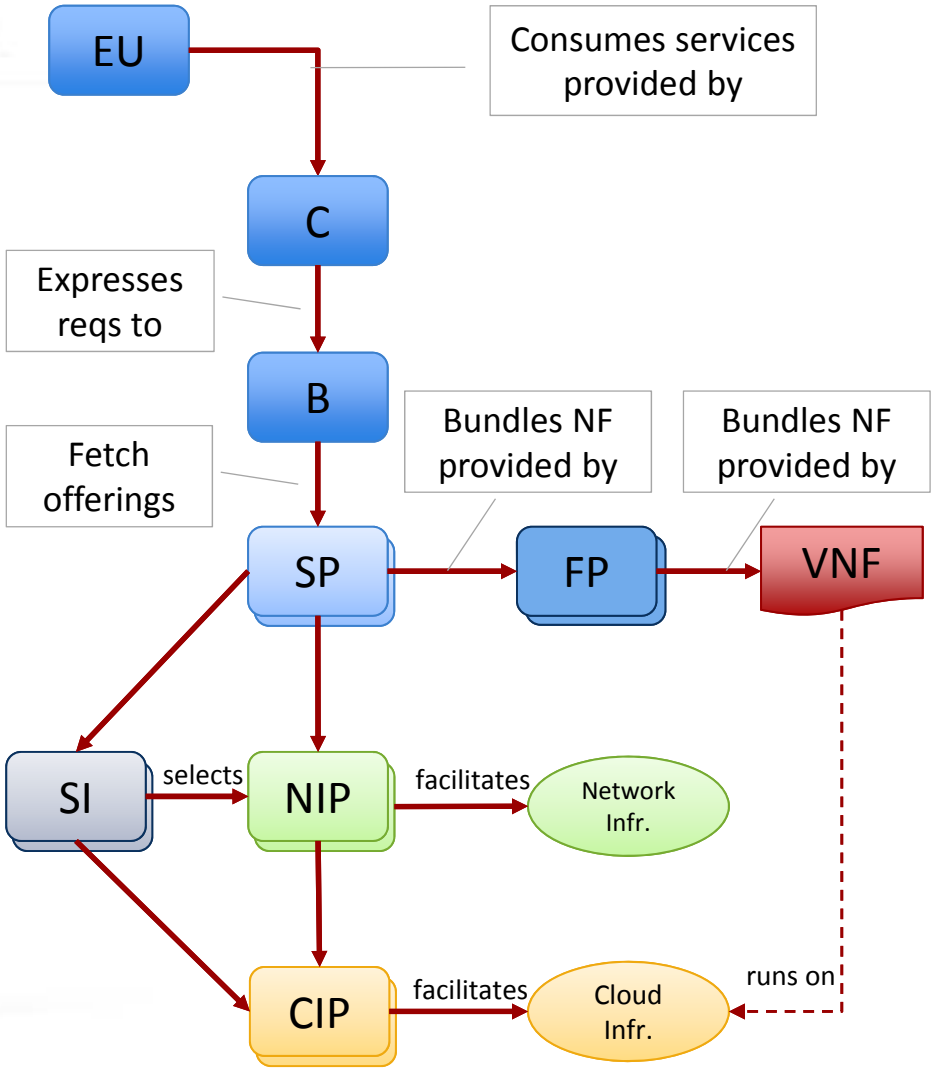
Marketplace Initiatives

- Initial efforts for NetApp Marketplaces have recently emerged
- Industry Based
  - HP SDN App Store
  - CIENA Agility Matrix and NFV Marketplace
  - Wind River NFV Marketplace
  - Pertino AppScape
- R&D
  - T-NOVA Project
- Other related
  - GSMA Marketplace

Technical Challenges

- Security and Trust (crucial to accept 3rd party developers)
- VNF Validation and Certification
- NS Verification (dynamic composition of NS by the operator's customer)
- Responsibility resolution
- Monitoring/analytics for billing and auditing
- Support for VNF specific VNFM
- VNF metadata description model (VNFD) and packetisation

VNFaaS marketplace model



VNFaaS Billing Models (Customer – SP)

Pay as you go	• Per volume of traffic processed (depending on flavor) • E.g. $0.1 per GB processed/forwarded by a VNF
Flat rate	• Per VNF instance (flavor), for a given period • E.g. $250 for a 100Mbps vDPI per month
Tiered rate peak/off-peak traffic	• Flat fee (probably with some traffic cap) plus extra fee for overuse • E.g. $250 for a 100Mbps vDPI per month, including 100 GB traffic, then $0.1 per GB processed

VNFaaS Billing Models (SP – FP)

License

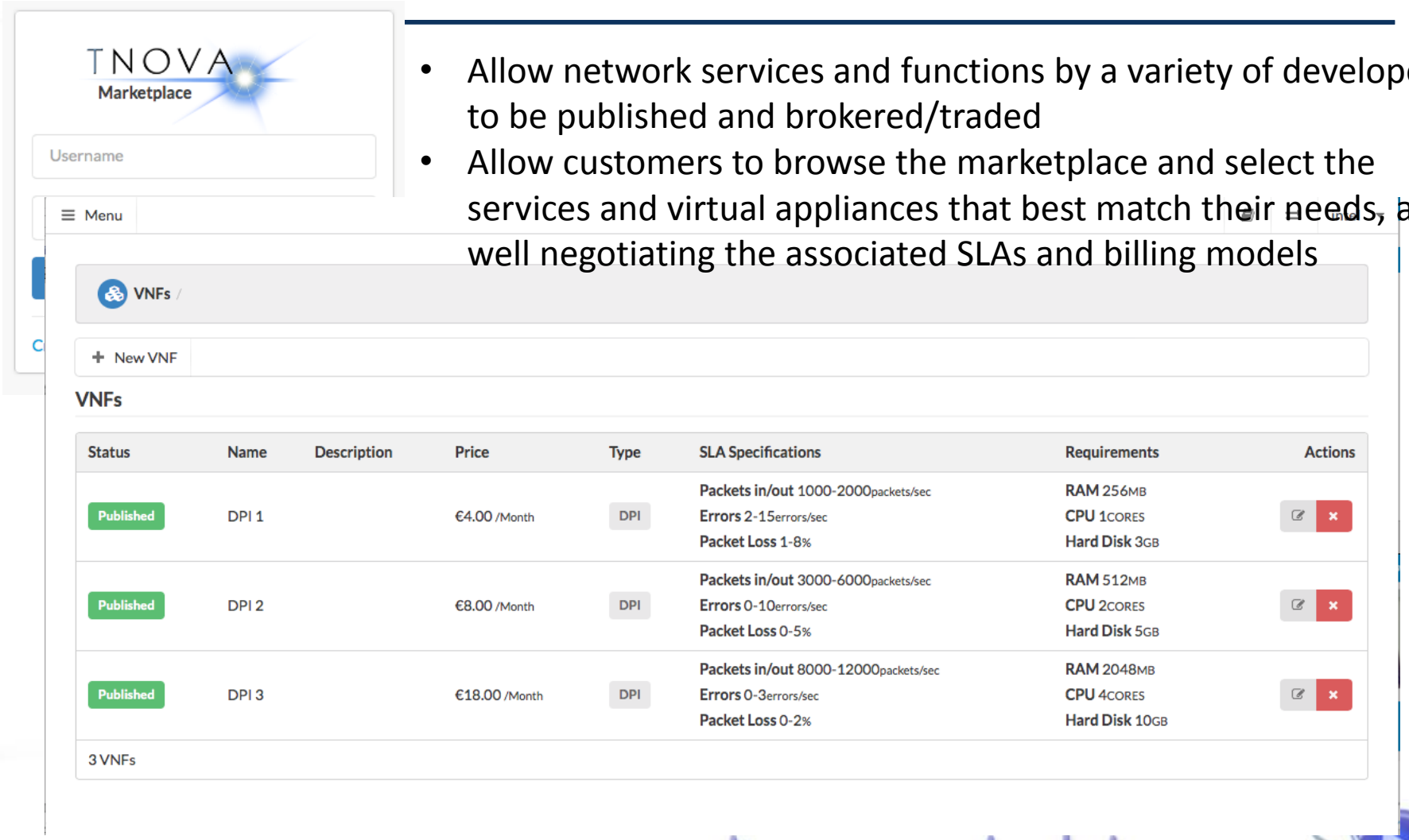
- charge once per perpetual use of the VNF (e.g. annual, or shorter time.)
- the software license the SP purchases from the FP may include, e.g.:
  - authorisation for N customers to use the NF in parallel
  - recommendations concerning efficient deployments.
  - training for SP and/or end customers.
  - rights to new software releases during the term of agreement at no additional cost.

Shared Revenue

- Combination of Pay per use (Customer) and License (FP)
- e.g. the final charge to the customer is distributed and split among different actors

T-NOVA marketplace

- Allow network services and functions by a variety of developers to be published and brokered/traded
- Allow customers to browse the marketplace and select the services and virtual appliances that best match their needs, as well negotiating the associated SLAs and billing models



Thank you!

www.medianetlab.gr

www.t-nova.eu

xilouris@iit.demokritos.gr