



A Software Defined Future

The Road to Innovation Requires Multiple Tactics

Rory MacHale

Innovation: Drucker (2002)*

1. Unexpected occurrences

IBM sells accounting machines to libraries not banks as intended

2. Incongruities

Cutting costs in shipping achieved by reducing idle time in ports leading to RO-RO and containerisation

3. Process needs

Linotype arises out of need to produce newspapers in volume

4. Industry and market changes

New products fill a new niche which existing products can't fill without undermining current markets: "Innovator's Dilemma" (Christensen)

5. Demographic changes

Japan: better education creates need for robots to do rote jobs

6. Changes in perception

We expect much more from "healthcare" today
Computers were once a "threat" now personal equipment

7. New knowledge

Most obvious form of innovation
But often has the longest lead time
Often requires multiple forms of knowledge

**The Discipline of Innovation*, Peter Drucker
Harvard Business Review, August 2002
<https://hbr.org/2002/08/the-discipline-of-innovation/ar/1>

Telecoms Networking – A Big Problem

“Telecoms networks are ‘maxed out’ and in need of an upgrade”

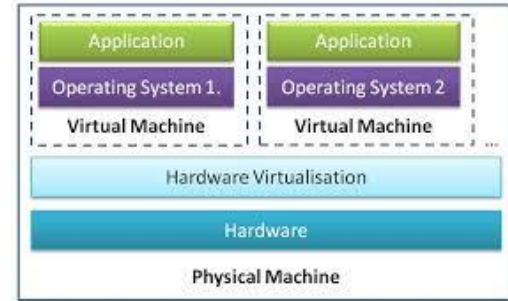
Financial Times 22-2-16

- Despite being at the heart of one of the defining and ongoing innovations of this age:
 - The Internet and associated World Wide Web
- There has been no “revolution” in telecoms networking in any meaningful way in the last 30+ years



The Emergence of “Cloud”

- Key Cloud technology enabler is
 - **Virtualisation**
- Hardware becomes in effect software
- Flexible and quick to deploy, configure and replicate
- Starting applications, changing features, capacity in seconds
- Streamlines computing, storage, but not networking
- Networking retains a hardware proprietary approach
- Expensive – requires skills to manage – inflexible

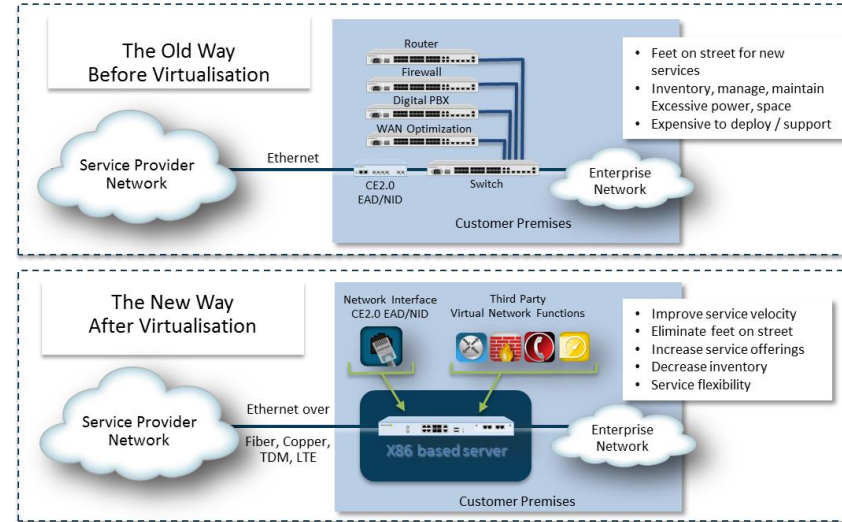


But there is a Solution to this Problem

- Based on work done in Stanford and Berkeley 6-8 years ago on a new technology called Software Defined Networking (SDN)

"Don't just master complexity ----- extract simplicity!"
(Scott Shenker – Berkeley - One of SDN's creators)

- A specification published in 2012 by a group of the world's leading telecoms operators on a related technology called Network Functions Virtualisation (NFV)



The networking problem is about to be solved

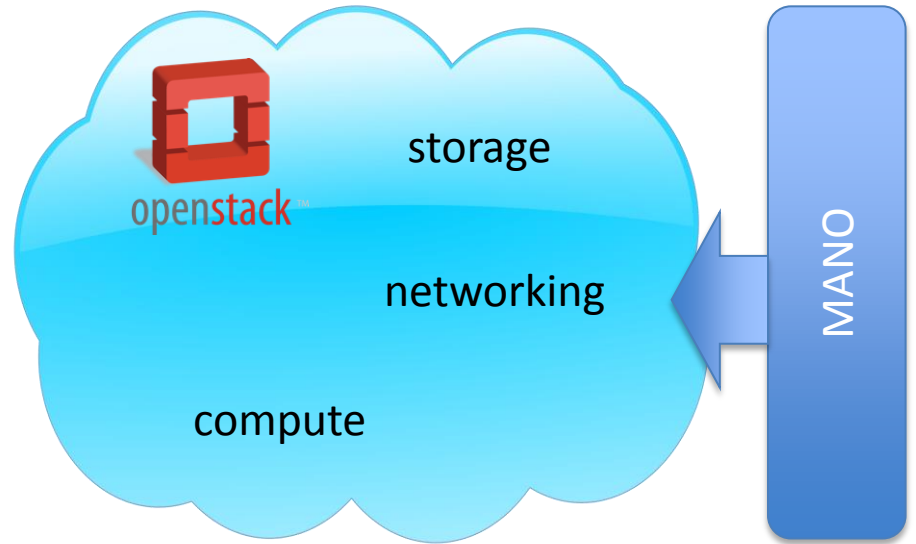
Iricent's approach to innovation

- We pick a sector rich in innovative developments
 - Software-Defined Networking (SDN)
 - Network Functions Virtualisation (NFV)
- We identify opportunities within the sector
- We tailor our response to the nature of the opportunity
- We saw:
 - An opportunity for an as-a-service offering within NFV
 - A product opportunity leveraging SDN
 - During a time of transformation, an opportunity to offer
 - Consulting Services
 - Integration Services

MANO

Management and Orchestration

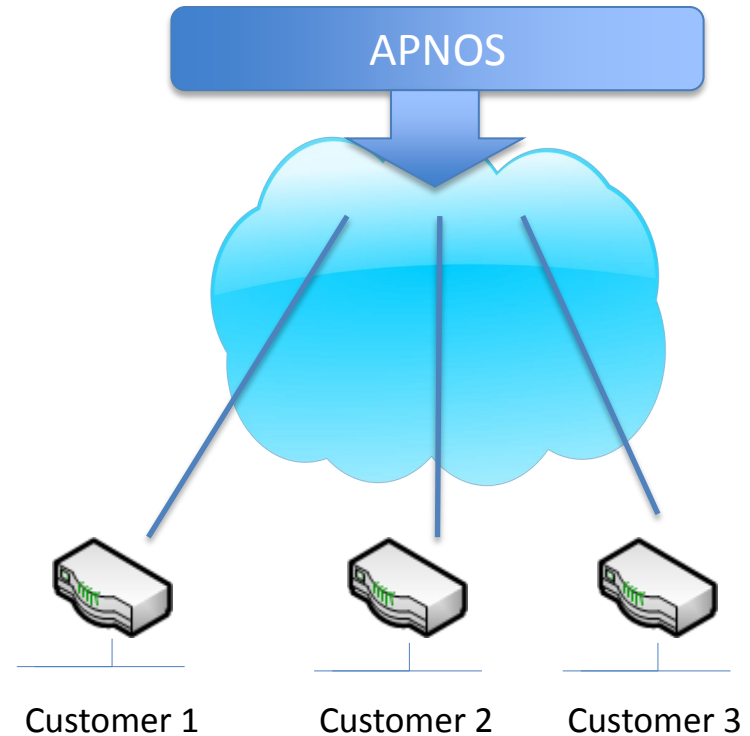
- A key component of NFV
- Automated deployment and management of complete service
- Iricent offer this as a service:
 - **MANOaaS**
- Benefits of MANO go to an extended market
- Supported in this through the Ammeon partnership
- 3rd party equipment suppliers



APNOS

Application Prioritisation and Network Optimisation Service

- Aimed at providing application-level control of Quality-of-Service
- Ensures business use (e.g. Skype) receives optimal service level
- Cloud-hosted service which manages customer access point
- Solves common customer problem without them needing networking skills
- Own product, developed in conjunction with TSSG



Finding innovation partners

- Spoke to a number of academic institutions
- TSSG by far most
 - Knowledgeable about SDN / NFV
 - Experienced in related technology areas
- TSSG very forthcoming with advice – technical and other – great whiteboard sessions
- TSSG very helpful in supporting funding applications
- Sought an integration partner
- Ammeon are
 - 10+ years in business
 - Strong cloud / DevOps / OpenStack background
 - 200+ experienced team
- Professional services, consultancy, integration and delivery services



Example: Iricent & TSSG

- Enterprise Ireland Innovation Voucher No. 1
 - Technology and market overview
 - Informed and confirmed our focus area
- Enterprise Ireland Innovation Voucher No. 2
 - Proof of Concept
 - Informed and confirmed our technology choices
- Contracted Development Work
 - Minimum Viable Product
 - Part funded by Local Enterprise Office
- Innovation Partnership Project
 - Just approved by Enterprise Ireland IRCC
 - Adds two additional key components
 - Commencement this week



The team



Damian Murray
Co- Founder

Damian has almost two decades of experience in Communications and IT networking with major industry players including Siemens and Nokia. Damian started his career in technical roles in enterprise data networking before moving into product management and then a succession of senior Sales and Business Development roles across both enterprise and service provider segments.

Damian has a degree in Electronic Engineering from Dublin Institute of Technology and an MBA from University College Dublin.



Ger O'Byrne
Co- Founder

Ger O'Byrne has over 25 years experience in telecommunications and IT networking with major industry players – Eircom, Siemens, Nokia Siemens Networks and Nokia. Ger started his career in technical roles in network design, implementation and project management before moving into sales and then a succession of senior management roles including General Manager Siemens Communications and Country Director Nokia Siemens Networks Ireland. During his career to date Ger has enjoyed considerable success in leading teams selling and supporting networking solutions in consumer, enterprise and service provider markets. Ger has a Master of Science (Experimental Physics) degree from University College Dublin, a CDipAF from the ACCA as well as numerous technical and management qualifications.



Rory MacHale
CTO

Rory MacHale has more than thirty years of international experience in the telecommunications industry, working with companies as varied as Eigensolve, Ammeon, Logica/Aldiscon, Softech Telecom and Siemens AG in Munich. Initially a software developer, Rory transitioned quickly into design and software architecture roles in public telecommunications, progressing to product and presales management. Rory held the post of Chief Technology Officer in his last two engagements, including ten years at Ammeon. Rory has also held a number of senior industry positions both as a director and technical committee chairperson of the Open Mobile Alliance and steering committee member of the Multimedia Messaging Interoperability Group. Rory has a BE(Hons) / Electronic Engineering from University College, Dublin.

Conclusions

- For Iricent, simple “innovation” is not enough
- We exist in an ecosystem full of innovation
 - Working with innovative commercial partners
 - Leveraging innovation from academia
 - Building innovative products, solutions and services