Mobile Edge Computing

ENSURING TELCO LAUNCHES ARE NOT RISKY BUSINESS

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5G: Reducing Risk With An Optimised Approach

Edge Compute is needed for 5G and 5G-enabled use cases, but currently 5G-enabled use cases are ill-defined and incremental revenue is uncertain. Therefore, it's not clear what is actually required, and the Edge business case is risky.

So… what does that mean for Telcos?

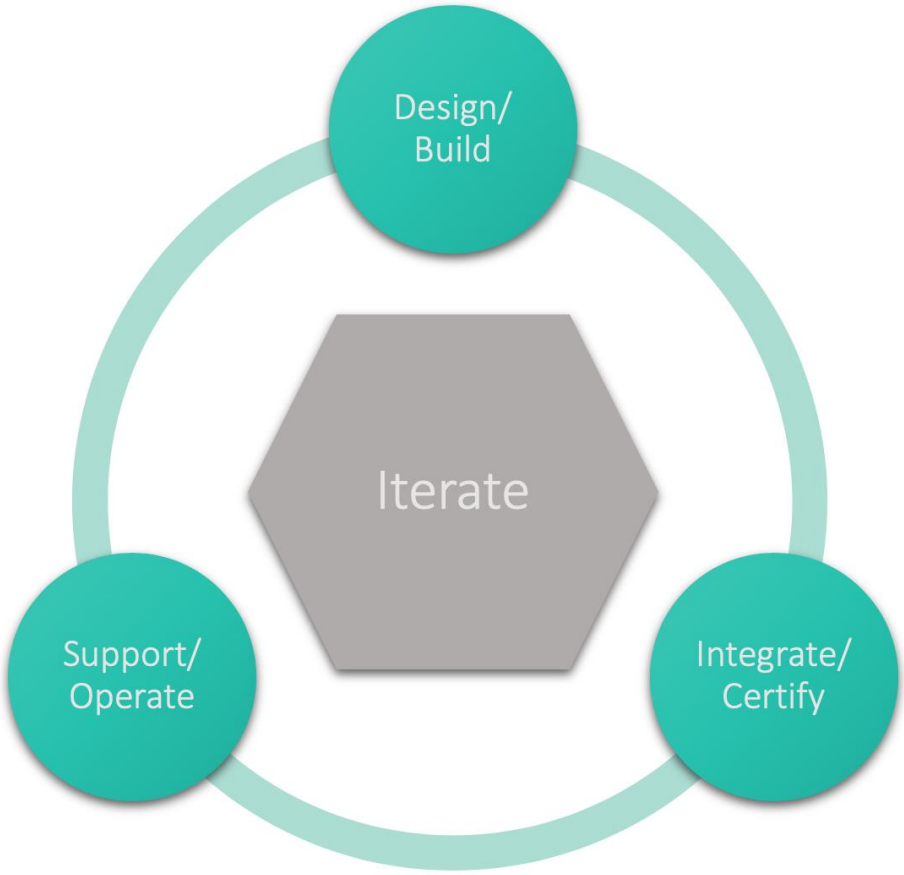
The 5G business case is difficult as we don't know what we need to build, i.e. What are the new things that 5G is going to enable? Without knowing this, we don't know the costs associated with it. There are basic ideas such as Edge Compute, networking and storage etc, but the exact requirements are uncertain.

Due to this uncertainty, costs are unknown and can potentially be quite high. Also, as the incremental revenue is uncertain, it is difficult for Telcos to justify expenditure. In order to mitigate these risks, the delivery approach for Edge Compute needs to be optimised. This means minimising the upfront commitment and allowing for an incremental and iterative approach which will allow for new functionality as it's required.

This article describes how Telcos can reduce this risk and ensure successful network launches by implementing a risk-optimised approach to 5G and embracing Open Source.

The Strategic Lifecycle

Our view is that the optimised 5G delivery model consists of three key stages: The Design/Build stage, Integration/Certification stage and the Support/Operate stage. Iterations can take place at any stage during the lifecycle.



The benefit to this approach is that because long-term solutions are uncertain, defining a long-lasting solution upfront will waste a lot of resources. As such, functionality is only added once requirements are clear which reduces upfront CAPEX costs. This also allows costs to be tied to incremental revenue, and the incremental delivery in turn reduces costs for iterative changes.

The Strategic Lifecycle – Design/Build Stage

There are a lot of options available for building Edge Compute. Integrated Stacks like Akraino, StarlingX and CORD provide open source solutions for large portions of the of the Edge Compute puzzle. But they are not complete, and not supported as products.

Most Telcos have made a start on NFV deployments so there are existing solutions for many parts of the Edge Compute puzzle in their networks:

- VIM/COE: Mirantis / Red Hat / WindRiver / Kubernetes
- MEAO/MPEM: Cloudify / Ciena/ ONAP / Other NFVO
- SDN Controller: ONOS / ODL / Calico / Tungsten

Which of these are appropriate for Edge Compute? None, if they are deployed in NFV environments. The question then becomes what needs to be done to reuse these assets in an Edge environment. Perhaps reuse is a poor choice.

The level of uncertainty and the potential need for a very large expenditure make traditional investment paradigms a poor choice. We advocate for an "Agile" model for this program: define what is needed in the foreseeable future and build only that. With Edge, it's important to realise that the foreseeable future is no further than 12 months. Defining a Minimum Viable Product is a proven approach for making progress in an uncertain environment.

The Strategic Lifecycle – Integrate/Certify Stage

Once the MVP has been defined, the reality of a building a solution must be addressed. As we all know in Telco environments, integration with existing solutions for BSS/OSS, service assurance and operational analytics is critical for any system heading into production.

Because we have chosen to minimise the scope at each stage, we can more easily perform these integrations and, most importantly, operationally validate and certify the small number of defined use cases for production.

In order to maintain operability in what will surely become a multi-vendor environment in the future, each phase of the solution build must be certified as it is deployed. Establishing a multi-vendor operating model is the key deliverable for this phase. That we have an Edge Compute platform here is almost incidental. If the Telco has not delivered an operating model that is open to new technology entrants then it will be impossible for them to generate incremental revenue from Edge Compute.

The Strategic Lifecycle – Support/Manage Stage

There are no surprises here. The production solution is part of a Telco network and must be supported and managed to these exacting standards. We have built a solid basis for the upcoming ecosystem and put in place a new operating model. Run with it.

The Strategic Lifecycle – Iterate

As we know, the Edge Computing environment will change. New use cases will be determined and need to be accommodated. Unfortunately, some of these will fail. However, because we are making our technology and investment decisions as late as possible using an iterative approach, the exposure to the Telco is reduced significantly.

Most importantly, as new requirements are accommodated, Telcos must preserve the multi-vendor operating model. Without that, incumbent infrastructure vendors will attempt lock in and restrict the ability of Telcos to generate incremental revenue with new use cases from innovative partners.

The Edge Compute environment of the future will be dominated by OTT plays that are almost certainly not going to be provided by the incumbent network equipment and solution vendors. Telcos must ensure that their Edge Compute environments do not restrict their future revenue opportunities.

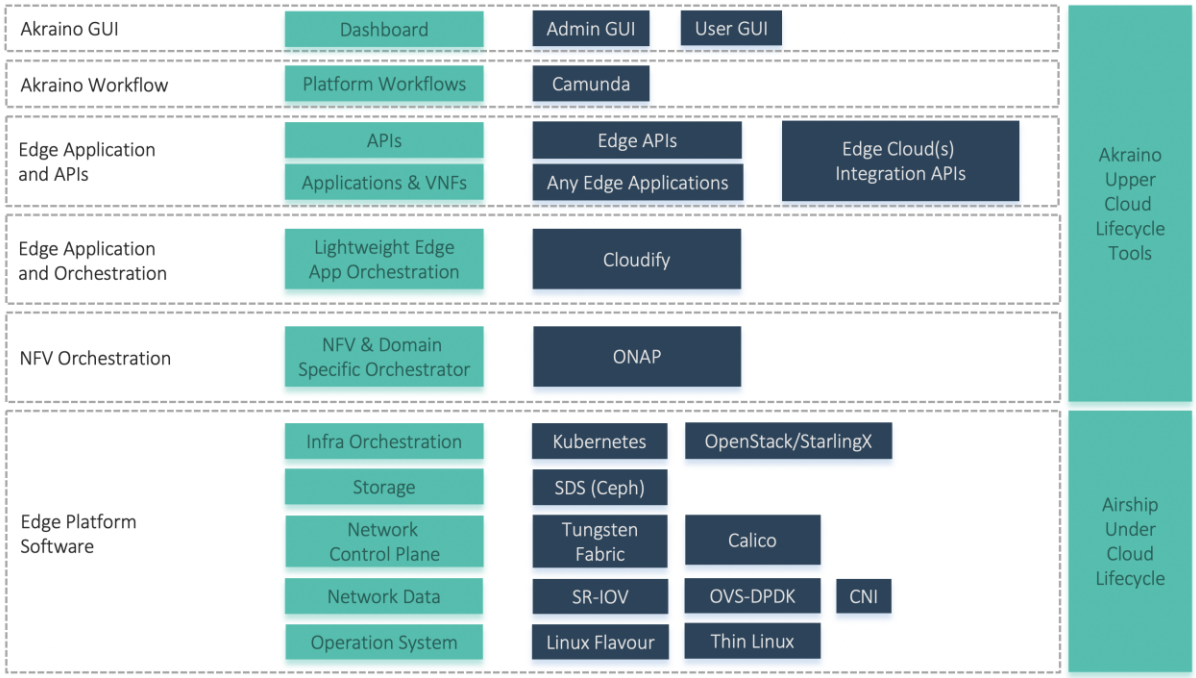
- As requirements and specifications mature
  - Update platform
- As new use cases arise
  - Repeat cycle to add certified capability
- Just in time investment
  - Only commit time and dollar resources as new business cases arrive
  - Do not “build it and they will come”

Build for the Visible Horizon

The best approach is to look at what we know and build towards that. What is required in the next year? The next 6 months? What is this business case being pinned on, and what needs to be built to get there? Create smaller scale goals and target early use cases, project functionality will be limited by immature requirements and use cases.

In order to successfully launch a new service or reduce maintenance on an existing environment, the detailed business, functional and technical requirements must be determined. This means defining the project scope, completing a pre-discovery checklist and determining any use case definitions. In addition to ensuring we are working towards an achievable target, this process ensures that the architecture will be able to be used by the team that follows to continue the implementation and operation of the system.

With so many technologies and so little time, many modern businesses are struggling to determine which technologies will support their innovation process rather than hinder it. A rapid assessment of technology choices should be conducted to best address the requirements of your project as well as to demonstrate the feasibility of these chosen technologies.

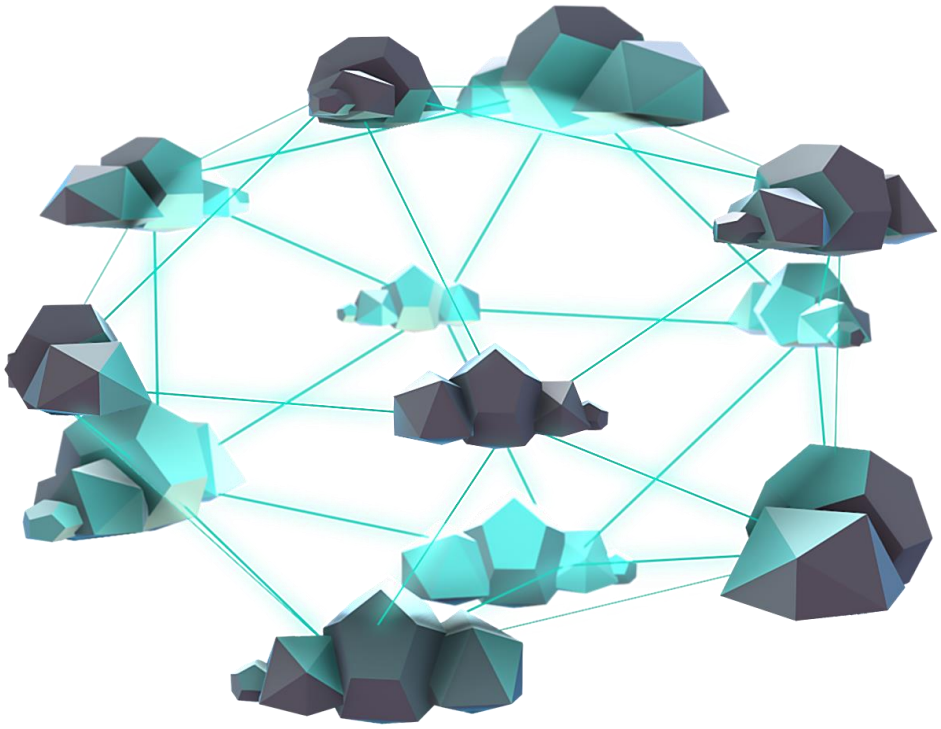


Open Source Architecture

Integrated software-driven solutions consist of applications, network, compute and storage infrastructure and are tied together with the latest orchestration and automation tools.

A customised strategy will provide maximum value for your organisation - your solution needs to be comprehensive and unique to fit your requirements. It must also integrate into your business workflow, resulting in overall reduced cost and complexity.

Multi-Vendor is Compulsory



"By 2022, more than 90% of infrastructure managed services deals will be based on agile workshop engagements rather than traditional RFPs, up from 35% in 2019."

Source: https://blogs.gartner.com/rene-buest/2019/07/17/infrastructure-managed-service-providers-must-lead-innovation-co-creation-convince-enterprises-shift-agile-infrastructure-deals/

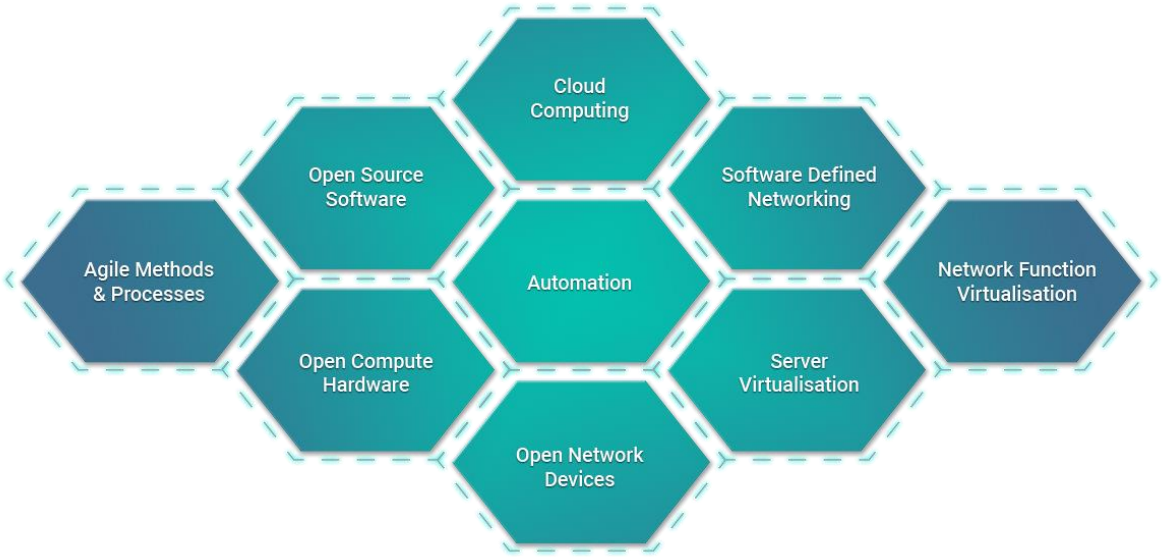
A single-vendor based solution will largely be proprietary when requirements are nascent, resulting in lock-in. As such, later re-engineering of the solution is inevitable. A successful implementation must remain independent, providing a solution that is best suited to the customer needs – not those that lock the customer into technology providers.

A multi-vendor solution will minimise expenditure in a high-risk environment. This vendor neutral philosophy ensures customers will not be locked into any particular technology or vendor, freeing them to select the most appropriate vendor to suit their requirements without the restrictions and additional expense that vendor lock-in often imposes.

Keeping It Open

Open Source Software has exploded into the software marketplace and transformed the approach to Open Networking solutions development. Telco environments need to move towards a "Cloudy" operating model. This means real open-ness. Not an Open Source product that a vendor has turned into a lock-in product.

At Aptira, we have a holistic & inclusive definition of Open Networking - Open Networking is simply how you build and manage highly performant, high-quality and high-value computing systems in the 21st Century. We believe Open Networking to be a set of concepts, practices and tools for the realisation and management of highly performant, high-quality and high value computing systems, encompassing:



Aptira is in an interesting position in the Open Source market, because we don't usually sell software. Instead, our customers come to us seeking assistance with deciding which OpenStack to use, or how to embed Open Source into their nationwide networks, or how to move their legacy networks to the software defined future. Therefore, our most common role is as a trusted advisor to help our customers decide which Open Source products to buy. We are committed to supporting the Open Networking community and fostering Open Networking technologies world-wide.

That makes it important that we recommend products from companies that are well engaged with their upstream Open Source communities. That might be OpenStack, or ONAP, or even something like OpenDayLight.

This raises the obvious question – what makes a company well engaged? And why is this important? If vendors aren't following these recommendations, they really aren't committing to Open Source. This means they are not independent and are likely trying to lock you into their product.

Here's a few things to look out for when selecting a well engaged Open Source vendor:

A Well Engaged Open Source Vendor Must:

- Employ an upstream team responsible for working on upstream features, even if those features do not immediately benefit items on the vendors' product roadmap. For example, paying down technical debt, structural work to position future development, and code review of other vendors' contributions.
- Participate in community design discussions for new features, with the best interests of users (and not their own product roadmap) as their primary concern.
- Support community provided stable branches instead of maintaining their own. This includes backporting patches, reviewing others backports of patches, and serving on the vulnerability management team.
- Develop patches for their own features in public, with an open design review process as well as iterative development of the code for the feature. This includes ensuring the feature is adequately documented in the upstream documentation when implementation is complete.
- Contribute resources other than developers – product managers, tech writers, DevOps etc. Upstream projects are more than just their code, they are the ecosystem of documentation, examples, and user support that allows people to actually use that code.

A Well Engaged Open Source Vendor May:

- Carry private patches against released upstream code in order to support their customers. They only do this when absolutely required (critical security fixes, stable branches no longer supported by upstream), and disclose to upstream when this has occurred. These patches are merged back into upstream as rapidly as possible, with customers being supported to transition to the upstream patches.

A Well Engaged Open Source Vendor Should:

- Provide continuous integration testing resources to upstream. This takes the form of both hardware and staff time. This item is a should because some smaller vendors might find this requirement unsustainably expensive.

A Well Engaged Open Source Vendor **Must Not:**

- Compete with upstream via proprietary add-ons, even if these add-ons are released as Open Source once they are no longer a competitive advantage.
- Develop new features in private.
- Take upstream code and commercialise it without engaging with the upstream community (the attributes listed in the "does" section above).

How Can We Help?

Since Aptira was founded in 2009, we have been committed to providing consulting, managed services and technology training to help our clients. We engage with Open Source communities that are delivering innovative software defined technologies which allow our customers to realise the advantages of Cloud and Network based solutions without locking them into vendor specific products.

For several years a large portion of Aptira's business has been driven by the Telecommunications sector. Our years of OpenStack expertise have been shaped by the need to have OpenStack meet the standard of Telco grade, so we've never been afraid to say no where there was any doubt when something didn't meet that grade.

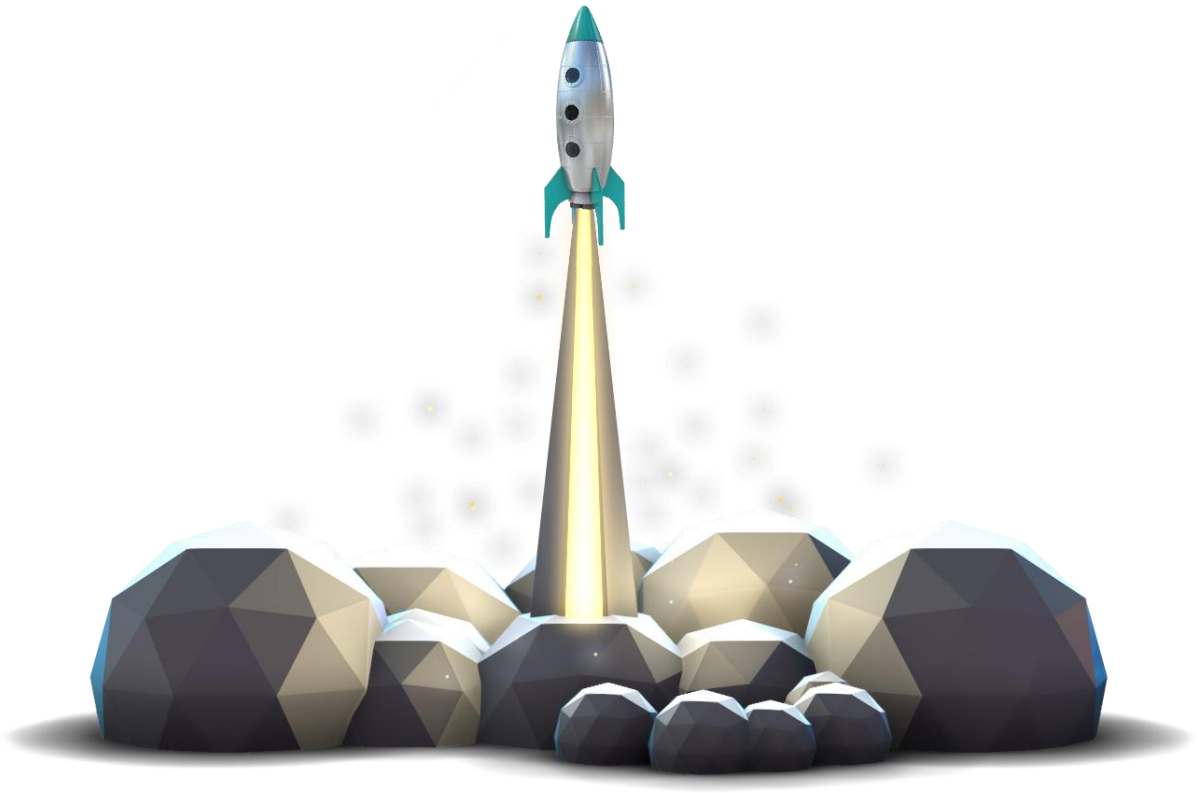
Working with technologies and communities we know well allows us to offer customers the trusted counsel and technical expertise we're known for, and we were particularly excited to help found the Linux Foundation Networking (LFN) project and to increase efficiency, foster project synergies, accelerate adoption and to dramatically increase the level of funding into the associated communities.

Aptira has delivered nation-wide infrastructure, communication and application solutions that give customers rapid access to the agility and cost advantages of software defined infrastructure while they ramp up their investment in their own organisations - we want you to spend more time focusing on your business.

We believe that your information systems and online services should have all the attributes of a basic utility. There is a standard perception that water or electricity is "always on" and we bring this same understanding to our services. Our aim is to become part of your team, a trusted advisor, a partner and a strategic asset to your organisation.

So… How can we help you?

Chat with a Solutionaut today.



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