



ENSURING AN INTERCONNECTED FUTURE

2018

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FOREWORD FROM THE GLF CHAIR

Foreword from Marc Halbfinger, GLF Chair, CEO PCCW Global

Over the past ten years economies, societies, enterprises and individual lives have been transformed by digital technologies. Global services, personalised to individual user preferences can be accessed anywhere on a wide array of devices 24 hours a day as part of an 'always connected' world. Communications, in the traditional sense, has transformed from becoming the core network service to just one of a broad suite of network-enabled applications.

The international telecoms industry is going through a period of fundamental and sustained change. The business model of communications and connectivity needs to modernise together with the requirements that are being placed on our networks, and the changing competitive landscape with the emergence of hyper-scale software businesses.

Changing technology and user behaviour in many environments including, but not limited to, media, 5G, and IoT, the transition to software-based networks provides an opportunity to develop new profitable growth engines within our businesses that further enable the global delivery of connectivity, content, and applications of consumer and enterprise services, in retail and wholesale environments.

Given the interconnected nature of our industry the changes engulfing us can be best driven together. The executive leadership of international carriers is required to come

together and work collaboratively to develop a new approach for our industry, one which ensures that we can be the backbone for the digital ecosystem in the same way we have been for telecommunications.

The ITW Global Leaders' Forum ("GLF") has been founded to provide leadership and direction to the international service-provider industry as we undergo this transformation. We are formed of the leading executives from over 25 leading international carriers to serve as a single voice uniting perspective across a common set of principles for what are essentially national infrastructure businesses in a global digital ecosystem.

Our mission to provide "leadership and direction to interconnect the world across multiple digital platforms" requires delivery of actions and not just discussion. Individually, as leading executives within our businesses, we are taking action and reshaping our organisations to best serve our customers in the digital ecosystem and ensure that the key industry property of global instant interoperability can be assured ubiquitously.

The GLF mission is to ensure that the evolving and future digital ecosystem remains commercially open to everyone, everywhere. We look forward to working with all relevant parties as we lead the international carrier industry through its transformation.

Best regards

[e-signature]

Marc Halbfinger

GLF Chairman, CEO PCCW Global

1. Background, mission and membership

The ITW Global Leaders' Forum (GLF) was formed in 2015 as an extension of the ITW Founders' Council to be the leadership forum of the international carrier industry representing its part of the industry as well as working alongside other industry bodies where there may be aligned interest on specific topics. Leading international carrier executives recognised that, given the fragmented nature of their industry in what is an increasingly global ICT ecosystem there was a requirement for increased levels of industry dialogue and collaborative activity regarding technological objectives and commercial settlement models.

The mission of the GLF is to be “the voice of the global carrier industry providing leadership and direction to interconnect the digital world”. This encapsulates the ultimate aim of the GLF, and its members, which is to enable consumers and enterprises to communicate and transact for any service or application, on any device and any infrastructure, in any geography, thus enabling the globalisation of business and the closure of the digital divide.

Specifically, the GLF exists to:

- Uphold the principle of interoperability and ubiquitous international technological coverage and commercial settlement
- Provide a single voice to the broader digital ecosystem from what can be perceived as a fragmented section of the industry
- Ensure alignment amongst international carrier senior executives for industry transformation

In an ICT environment in which hyperscale global internet providers can create closed-garden ecosystems, the GLF seeks to promote the concept of ubiquitous international interoperability that has first been developed through circuit-switched voice, and extend the concept of open-networks into a new generation of connected services and applications across multiple network and software infrastructures. The GLF seeks to ensure that the future is one of open interconnection across networks and not solely within closed digital ecosystems.

The GLF is governed by a board consisting of leading executives with direct responsibility for the international wholesale business in their organisations. International wholesale carriers are defined as network providers who have infrastructure in at least two markets, offer carrier services (including but not limited to capacity, colocation, VPN, ethernet, network security), and trade capacity on their networks to third parties.

02.

Ensuring open interconnectivity in the digital ecosystem



2. Ensuring open interconnectivity in the digital ecosystem

A vision to ensure the globalisation of business and the closure of the digital divide

International carriers provide the backbone of the ICT ecosystem guaranteeing the universal interoperability of services and allowing the global provision of consumer and enterprise communication requirements. For example, if you make a fixed line telephone call from London to Istanbul, it is enabled by international carriers who enable a call originating in the UK to terminate in Istanbul by providing a continuous physical connection between each location. Or if you are an enterprise accessing a central secure corporate network across multiple countries, it is

enabled by international carriers who assure to extend your services wherever you may be. It is for these reasons that international carriers' wholesale business should be viewed as the linkage layer among infrastructures and services.

This is a process of significant complexity due to the multiple networks with different ownership and in different geographies that the data must cross, and the variance in routes that the traffic could use. International carriers' commitment to interoperability through the interconnection

EXHIBIT 01: The complexity of connecting two markets

Key: each colour line represents a potential route connecting London and Istanbul - illustrative, not exhaustive



Note: ACD = Average Call Duration, ASR = Average Seizure Rate, CLI = Customer Line Identifier

Considerations	
Price	What route offers the lowest price per minute?
Latency	What route has the lowest latency to connect calls?
Average Call Duration	Does the ACD suggest good reliability of the line?
Average Seizure Rate	Does the ASR suggest good quality of connection?
Customer Line Identifier	Is it a high-grade line where we can identify call origination?
Reciprocal opportunity	Does the supplier of the route also require services from the purchasing carrier?

Source: TelCap

of their networks means that if you receive a voice call or email, or access content or digital services, in one country that has originated in another, the likelihood is that it has been passed through multiple networks, all of which have been developed to assure end-user satisfaction.

As all industries undergo digital transformation, it is necessary for ICT service providers to evolve their technical and commercial approaches to ensure the concept of global ubiquitous connectivity and access can be sustained. Without this, the future of connectivity may evolve to multiple closed-wall ecosystems without interoperability in-between. Given the level of interconnection between and among

“By ensuring that any two end-points can be connected international carriers have developed the building blocks for global ubiquitous connectivity, which provides the platform for both consumer and enterprise digital services”

– Carl Grivner, Colt

carriers it is a change that no single party can make on their own – it will require industry coordination and collaboration.

Given this role, the GLF has set a clear vision statement for the international carrier industry:

“We enable consumers and enterprises to communicate and transact for any service, on any device, on any infrastructure, in any geography.

We ensure the globalisation of business and the closure of the digital divide.”

“International carriers are the backbone of the digital ecosystem ensuring connectivity between any two end-points. It is fundamental for the future health of the digital ecosystem that this ubiquity facilitate interoperability of systems, infrastructures, services, and applications ecosystems, however large they may be.”

– Marc Halbfinger, PCCW Global

03.

The value delivered by international carriers



3. The value delivered by international carriers

International carriers are the backbone that enable the global digital ecosystem

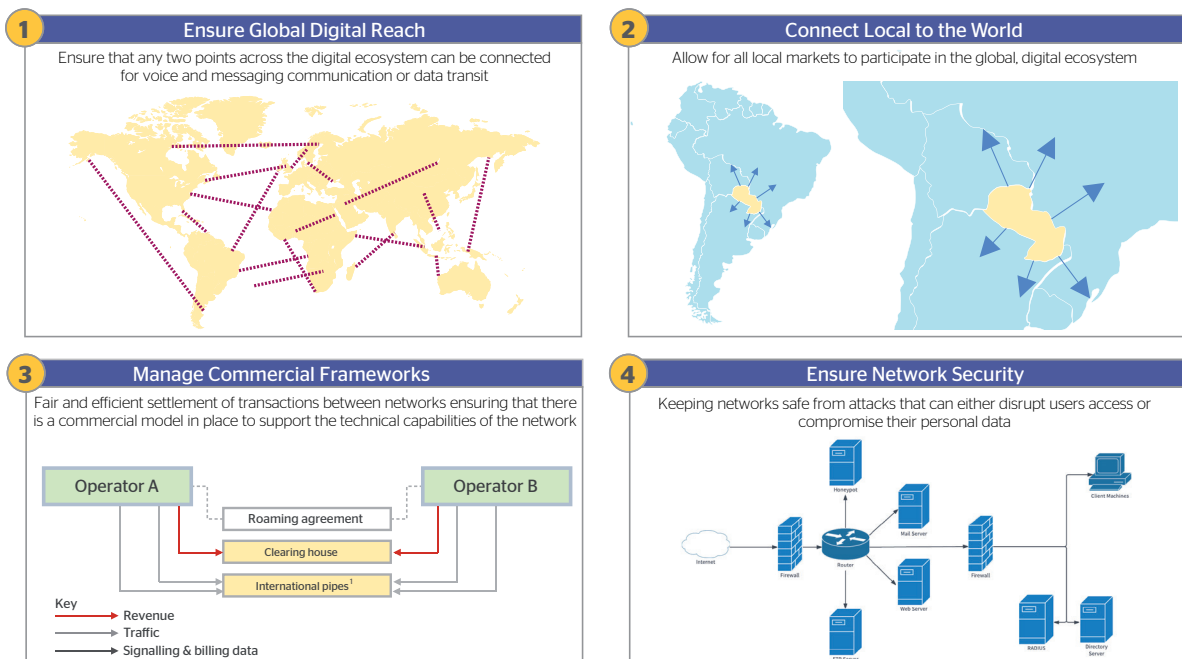
3.1 Ensuring global digital reach

International carriers ensure that any two points across the digital ecosystem can be connected for voice and messaging communication as well as transit of data. For example, to set up a multi-national enterprise VPN network allowing a company to operate a single network across countries requires multiple carriers to provision their networks to build the required footprint.

Overall, carriers play several roles to ensure the provision of global digital reach:

- Investing in the construction of network infrastructure assets including sub-marine cables, terrestrial networks, satellites, and network nodes required to provide the global connectivity underpinning digital services
- Trading network capacity (both minutes and data bandwidth) to allow for connections to be formed between two destinations

EXHIBIT 02: four areas of carrier value creation



Source: Redshift Analysis

- Offering 'value added services' which guarantee quality of service or add additional features and applications beyond basic connectivity, using information that is transiting the networks to deliver intelligent solutions such as fraud management or network security.

This global digital reach is underpinned by international carriers' commitment to sustaining a global interoperable communications network, compliant with governments, and that allows service providers to have connectivity between any two end-points. Such compliant global coverage cannot ever be facilitated by any single proprietary network or internet ecosystem.

"I see our role as an enabler of connectivity focusing on enabling interworking between the different industry players"

- Mardia van der Walt, DT ICSS

Through the inherent need for interconnection between and among networks, international carriers have developed extensive and deep relationships. Such relationships allow carriers to work together to ensure alignment and interoperability, while avoiding fragmentation in carriers' commercial or technical approaches.

3.2 Connecting local markets with the global digital ecosystem

Through interconnection, international carriers allow for all local markets to participate in the global, digital ecosystem. As such, service providers or content producers do not need to be based in a leading digital hub such as Silicon Valley or

"The value of the carrier industry is evident in the reach that we enable. We work to ensure that everyone can participate in the digital ecosystem,"

- Daniel Kurgan, BICS

Western Europe to reach global markets – global connectivity is possible from any location using local network providers.

To ensure extending reach to the global digital ecosystem, some larger international carriers have created 'hubbing' and 'exchange' products, which allow one network provider to access multiple networks around the world through a single technical and commercial relationship rather than needing to transact with multiple carriers in multiple regions and jurisdictions.

As such, carriers with a localised presence can access the global market without requiring the scale to negotiate, execute and integrate networking agreements with hundreds of separate carriers around the world. This local carrier can in turn provide its own local customers connectivity across the globe they otherwise would not be able to access.

Increasingly, international carriers are providing software-driven platforms through which they can define, configure, and deliver connectivity services into multiple cloud environments. For example, through providing dynamic switching between technologies or making available capacity on demand.

3.3 Managing a commercial framework for international connectivity

Beyond the technical interoperability between and among networks and infrastructures,

international carriers have developed the commercial frameworks to ensure that ICT services can be traded under a consistent approach and therefore services can be provisioned with ubiquity between any two network end points. It is these commercial frameworks that allow your home mobile operator to provide the ability for a consumer in making calls or accessing data whilst abroad or as an enterprise to manage a global network that goes across the infrastructure of different carriers.

Settlement systems, ensure that the international carriers who have invested in infrastructure can participate in a fair and balanced cost/benefit system and that they continue to have an incentive to invest and

“Having the appropriate commercial frameworks in place is critical to enable the global connectivity solutions our customers expect”

– George Sloan, AT&T

improve their network that can handle the growing array of new digital services and products.

Without such a system, individual network providers would either limit their services to on-net (i.e. only over their own network infrastructure) or need to undertake separate commercial negotiations with each network customer creating significant complexity and therefore costs – for example, the commercial contracting to transit data traffic between the USA and Italy could become overly complex if separate agreements were needed to be negotiated from first principles with each network that held the traffic.

3.4 Ensuring the security of international networks and data

With the on-going prevalence of network-enabled digital services, keeping networks safe from attacks that can either disrupt users' access or compromise their personal data is critical. With businesses increasingly hosting their services in the cloud, the emergence of Internet of Things (IoT) applications, and consumers accessing global services through mobile devices, the impact of network security breaches such as DDoS attacks or unauthorised access to data can be incredibly high.

Ensuring the security of telecoms networks, and the data being transported, is fundamental to international carriers' role in the digital ecosystem. Whilst carriers primarily address this independently, it is their consistent prioritisation of this issue which enables a high level of security across networks. Protection and support delivered by carriers includes, but is not limited to:

- Network monitoring and strategies to be alert to, and counter, DDoS attacks which could impact customers' ability to operate online businesses.
- Protection against hackers exploiting vulnerabilities in signalling protocols that could allow for privacy breaches
- Solutions to protect customers' customers from being subject to receipt of unsolicited text messages

“We've seen an increased demand for network security – especially for services that allow for more proactive and robust defences against DDoS attacks.”

– Michael Wheeler, NTT Communications

04.

Carrier priorities to ensure an open interconnected future

4. Carrier priorities to ensure an open interconnected future

The international carrier industry has four priorities to ensure an open interconnected future

	Requirement	Rationale	Value created
1 Modernise core industry processes	Revise technical (interoperability) and commercial (settlement) frameworks to support evolving digital services	Existing technical and commercial frameworks are insufficient to support emerging technology and service innovations	Enable the extension of global reach and ubiquitous connectivity to extend into the IP era
2 Engage with ecosystem players	Strengthen relationships between international carriers and leading and emerging internet players	Position international carriers as the 'partners of choice' for network infrastructure and international connectivity	Enables carriers to be suppliers to the internet majors and emerging players with new business models
3 Ensure efficiency of investment and network operation	Identify more efficient CAPEX and OPEX approaches to sustain FCF performance	As top-line growth slows due to pressure on voice / data transport, CAPEX/OPEX optimisation can support on-going FCF generation	Allows FCF generation by carriers through on-going period of industry transformation and network investment
4 Extend ubiquity of applications	Extend the service-layer ubiquity of voice and messaging into a new wave of digital services	Promote open service access as opposed to walled gardens	Ensures value of ubiquitous reach of voice and messaging is replicated in digital applications

4.1 Modernise core industry processes to ensure an interoperable future

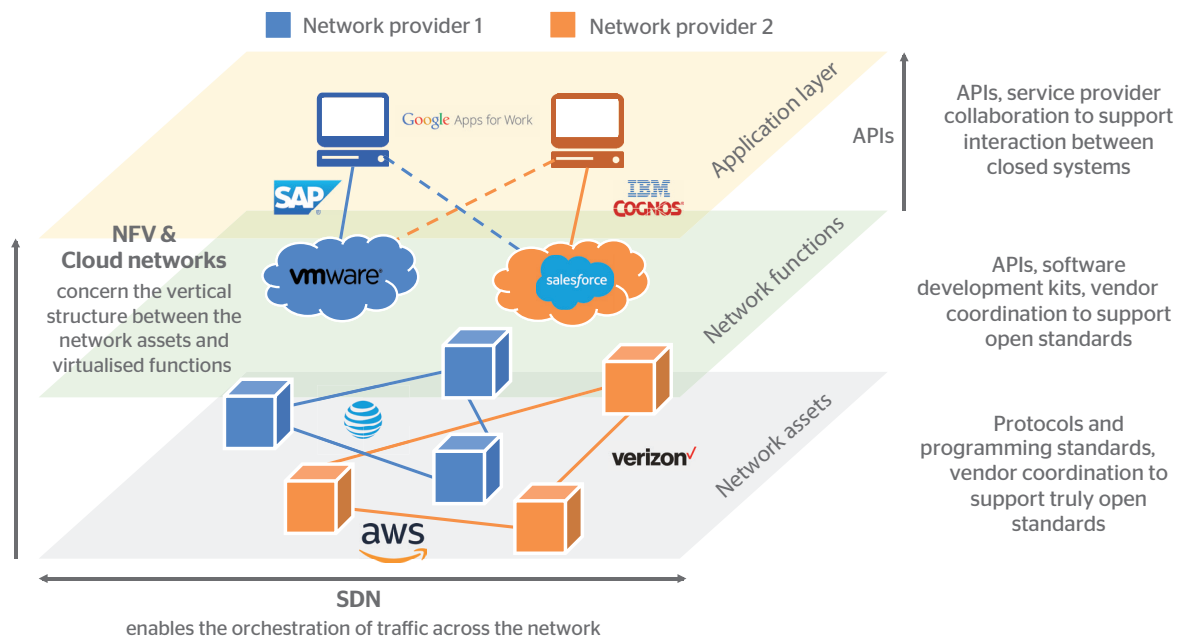
Technical: Network Interoperability

Just as international carriers have ensured the interoperability of voice and data services, this functionality will need to evolve from the current environment into supporting software-defined and virtualised networks without which the concept of ubiquitous connectivity will not hold. The requirement for interoperability in an NGN context is included in the exhibit below.

Within the NGN environment, interoperability will be needed between providers at the Network Asset, Function, and Application layers. Whilst critical, this will be complex to deliver as it will require collaborative wholesale commercial models that underpin technical evolution, which lack precedent in the carrier industry, with players facing commercial considerations between facilitating the hand-off of network services between different players in the ecosystem versus attempting to gain further market share of network services.

Commercial: Inter-carrier settlement

Evolution of network traffic must be supported by settlement frameworks

EXHIBIT 09: interoperability in an ngn context

“The softwarisation of the network and services is one of the biggest challenges facing wholesalers today.”

– Juan Carlos Bernal, Telefonica

among all players willing to participate. As network traffic evolves, there will likely be requirements for increasingly specific treatment of IP traffic by use-case, and increasing network performance demanding diverse valuation parameters. At present, the commercial frameworks do not exist to support the network technology innovation such as SDN and NFV. Looking forward, a range of new settlement parameters could be required to satisfy networking requirements.

Operational: Softwarisation of the carrier

Underlying both the technical and commercial requirements is the opportunity for carriers to ‘softwarise’ their own operations through three areas of initiatives:

automation, digitisation and innovation.

Presently, the primary driver of existing softwarisation programmes among carriers is the immediate and tangible financial gains from both automation and digitisation, which are attributed with delivering cost reductions through the reduced labour requirement, reduced cost of failure, increased efficiency and productivity, and increased ability to scale.

Despite the short-term gains driving most of investment in carrier softwarisation programmes, carriers recognise the

“Our thought process on the shift towards an SDN world is geared towards enhancing operational efficiency and operational quality to be able to do things more easily, better and in a much more quality assured way.”

– Staffan Göjeryd, Telia Carrier

“New commercial frameworks are required to ensure international carriers’ ability to facilitate ubiquitously delivered new IP services.”

– Marc Halbfinger, PCCW Global

importance also of the longer-term benefits of product and service innovation. Increasing migration of the carrier business model to software-driven processes will support greater interaction with the wide ecosystem and third parties whose business models are completely software-based. Alongside the cost reductions, operating efficiencies, and new revenue streams that softwarisation enables, there is an industry-wide carrier consensus that softwarisation enables a virtuous cycle of large-scale data collection, operational and organisational oversight, and data-driven decision making. This is effectively the Big Data opportunity that softwarisation facilitates.

To deliver the benefits of softwarisation, both short and long term, there is the need for industry collaboration around a set of priorities: alignment of technology roadmaps, coordination towards common standards, collaboration to support a dynamic testing and learning process, and a roadmap for retiring legacy network assets.

4.2 Engage with ecosystem players

Carrier executives recognise the importance of collaborating with stakeholders across the digital ecosystem – especially internet platforms and digital service providers who, going forward, will be responsible for the majority of traffic over the international networks.

To create value from these relationships, international carriers need to demonstrate the value that they can deliver beyond

EXHIBIT 10: examples of future relevant settlement parameters

Future settlement parameters

Carrier service	Transaction-based		Access based								
	Distance	Duration	Time of day	Security	Bandwidth	Latency	Drop-off-rate	Jitter	Packet loss	Two way data flow	Service availability
Video streaming		✓	✓		✓	✓	✓	✓	✓		✓
Virtual reality	✓	✓			✓	✓	✓	✓	✓		✓
SDN/NFV	✓	✓		✓	✓	✓	✓		✓	✓	✓
IoT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Smart utilities	✓	✓		✓	✓	✓			✓		✓
eHealth	✓	✓		✓	✓	✓	✓		✓		✓
CAVs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Source: GLF

“Businesses must not see the ongoing wave of digitisation as a threat – rather this is a great opportunity for them to be on the digital side. Digital enablement of business processes holds great potential to seamlessly inject business agility and provide much needed competitive edge to win in the long run”

– Ajay Chitkara, Bharti Airtel

transactional leasing of capacity and become the ‘partners of choice’ to enable internet services. A benchmark of GLF member company engagements with internet players identifies that whilst at present carriers’ relationships are primarily in areas such as wholesale network capacity and IP transit there are several opportunities where carrier executives believe that they are well positioned to offer enhanced value to internet partners, with opportunities including, but not limited to:

- **Security** – carriers’ networking expertise and management of the physical network architecture makes them well positioned to lead on the development of network security standards and management
- **CDN** – opportunity to offer solutions for smaller internet players that do not have the scale to develop their own solutions
- **IoT** – several opportunities likely to arise from IoT service enablement with carriers’ able to offer interoperable international connectivity to underpin solutions in what could be a fragmented market
- **APIs** – recognising that this will continue to be a high-growth segment of the value chain, as with CDN, carriers have the opportunity to develop API

solutions for smaller internet service providers who may not have the scale to develop their own, such as integration with communications functionality

4.3 Ensure efficiency of investment and network operation

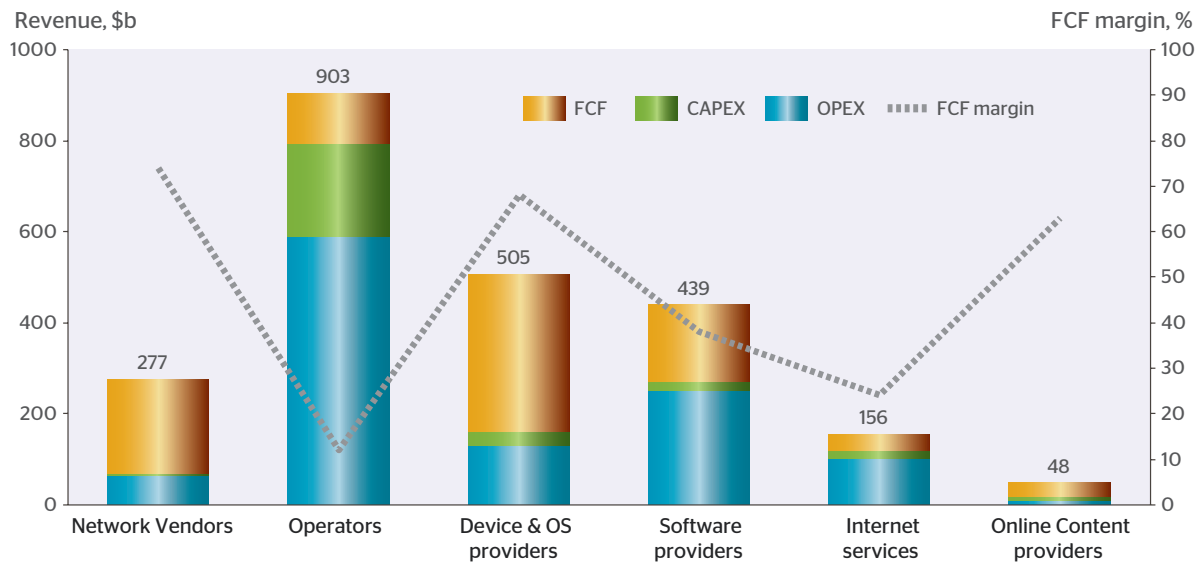
As physical network infrastructure providers, telecoms network operators carry a higher CAPEX and OPEX base than software-driven companies. This results in network providers generating lower free cash flow margins, which combined with investors’ primary view of telecoms networks as dividend stocks limits network providers’ ability to invest in new business growth.

Given the FCF challenge and on-going dividend expectations, it is important for carriers to identify how they can reduce the unit cost of network investment and operation. Through successful cost base transformation, carriers can continue to

drive FCF growth even through periods of revenue growth stagnation. There are five primary approaches which could be taken:

“It is important that we continue to innovate and evolve in order to ensure that our customers continue to choose us as their partner and to ensure a successful and profitable business for years to come”

– Juan Carlos Bernal, Telefonica

EXHIBIT 11: ecosystem players' efficiency and free cash flow margin in 2015 (\$b, %)

Source: Redshift Analysis

1. Shared Investment Individual Operation –

Joint carrier investment projects creating shared assets that can be operated individually by each carrier who has provided investment. Precedent for this approach comes from telecoms subsea cable investments as well as duct or pole sharing for fixed line networks.

2. Joint Procurement – Leverage scale of multiple carriers working together through alliance, JV or consortium structures to enable joint procurement from vendors. An example of this model is the BuyIn Alliance between Orange and Deutsche Telekom.

3. Process Simplification – Use of standardised technologies, internal systems and processes to reduce the cost of interconnecting between carriers. Examples of this model in other industries include airline code sharing, e-ticketing, and baggage handling

4. Third Party Entities – Use a third-party entity either on a cost recovery

or commercial incentive model to offer shared services on behalf of the whole carrier industry. This model has been utilised in the payments industry with third party card processors.

5. Fraud Reduction – Drive efficiency through improved identification and prevention of fraudulent voice traffic. An example of this approach from the financial industry is the EMVCo security standards.

All of these activities will require collaboration between international carriers as a single carrier alone does not have the scale or the industry independence to achieve the benefits sought.

4.4 Extend the ubiquity of applications

With voice the telecoms industry created globally ubiquitous products that could connect any two network end points. Looking to the future it is key for carriers to extend the value of voice and also replicate ubiquity in

“Whilst we continue to explore new growth areas such as IoT, we must not lose sight on continuing to create value through voice – at least in the medium term there will be demand for carrier grade international voice services.”

– Feddo Hazewindus, iBasis

other digital services.

Whilst OTT-IP Voice continues to scale, especially in consumer markets, voice will continue to be a key service for hundreds of millions of users around the world. The sustaining relevance will be driven by:

- **Segment-specific relevance** – segments such as within enterprise where voice is job function-critical or needs to be secure / recorded for regulatory purposes where a carrier-grade solution will continue to be in demand.
- **OTT-IP voice** yet to reach a tipping point – for IP voice to become the de-facto approach, as opposed to circuit-switch, there needs to be a ubiquity of fixed and mobile internet connections. Taking 3G+ penetration at a level of 80% as a proxy for the minimum level required for this

‘ubiquity’, 65 markets covering 43% of the global mobile connections will have reached this by 2020. This evolves to become 120 countries in 2023 and 142 countries representing 67% of global mobile connections in 2025 – this will mean a market of over 1.5bn people will still rely on carrier enabled voice.

Beyond voice, the digitisation of services creates opportunities for carriers to use their interoperable networks to create a new generation of ubiquitous services such as video communications, asset monitoring and payment remittance. International carriers are critical to ensuring that future generations of services offer the utility of ubiquitous interoperability that users have benefited from with voice.

05.

The role of the GLF



5. The role of the GLF

GLF exists to provide leadership and direction to interconnect the digital world

5.1 GLF Role

The GLF serves four primary roles:

1. Oversight of collective industry activities

Through its discussions GLF members agree a set of activities through which subsets of membership agree to work on collectively. GLF members participating in each activity nominate the relevant subject matter or functional experts from their organisations to participate in the activity's development whilst the GLF members provide oversight and direction. Each cross-carrier activity sponsored by the GLF is led by a single GLF member responsible for its development and reporting progress to the GLF.

As the executive layer within their organisations, the members of GLF are able to advocate, and more importantly

implement, the recommendations agreed through these activities, leading the industry collectively to a better position.

2. Endorsement of technical bodies to accelerate adoption

The GLF recognises that within the telecoms ecosystem there are several bodies working on collaborative technical initiatives, be they joint projects between a small number of players or larger activities under the guidance of third party bodies. With no ambition to replicate the work of these groups, the GLF sees its role as providing endorsement of these activities to accelerate adoption within the carrier industry and to stimulate work on the necessary commercial aspects required to bring the technical solutions to market.

As the GLF matures as an industry body, it hopes that its endorsement of technical

“The benefit for Telstra’s participation in the GLF is threefold: 1) to make a meaningful contribution to the strategic direction for necessary alignment and cooperation between carriers around the world (whilst adhering to anti-competitive regulations); 2) to understand relevant global trends and their impact on the industry better, which will provide input into Telstra’s strategic imperatives; 3) build and maintain a network of executives of partner organisations needed to fulfil the needs of the customers Telstra serves”

– Martijn Blanken, Telstra

“Given the fundamental role we play in enabling our customers to deliver and access services worldwide it is important for the wider industry to understand our mission and requirements to sustain our ability to create value”

– Ali Amiri, Etisalat

initiatives will provide confidence to the wider international carrier industry of the suitability of the initiative to bring to market at scale.

3. Provide a ‘voice’ for the international carrier industry

The fragmented structure of the international carrier industry means that it can be challenging to communicate with stakeholder groups, be they potential partners, investors or regulators as an industry. As a body of international carrier leaders, the GLF can provide advocacy messages on behalf of the GLF, collectively representing all its member carriers.

GLF members recognise that the role and activities

of wholesale carriers is not fully understood both across the broader telecoms ecosystem and within individual telecoms groups. As such, the GLF believes it important to advocate wholesale’s role and value it creates as the enabling layer between the infrastructure and customer facing business units.

The GLF is committed to communicating the value of the wholesale ecosystem as an economic enabler of digital services and will leverage the Capacity Media and Capacity Conferences platforms, amongst others, to promote key industry messages on behalf of the collective industry. Given the structure

of the carrier industry, it is critical to have a united view on key strategic topics, which can be presented as an ‘industry position’. The GLF will work through its members to identify these issues, before forming and communicating the agreed position/s to relevant stakeholder groups.

Furthermore, GLF will take responsibility to promote career opportunities within the international carrier industry to seek to increase the sector’s attractiveness for talent across all business functions.

4. Thought-leadership on strategic industry topics

GLF members set an agenda of strategic topics to discuss that have relevance at an industry level

that may not gain the focus required at an individual carrier level. These topics are developed into detailed ‘Thought Leadership’ reports circulated to all GLF-member organisations as well as being used for a basis for discussion in GLF meetings and a catalyst for collective activities. Examples of recent topics considered by the GLF are:

- **Interoperability in a next-generation-network environment** – an analysis of the requirements for international carriers to extend the concept of ubiquitous international interoperability into an SDN/NFV environment, and benchmark of carriers’ status of development

“As an industry based on the principles of interconnection and interoperability, collaboration is critical to our future growth”

– Marc Halbfinger, PCCW Global

- **Partnership approaches with ICT service providers** – a benchmark of GLF carriers’ relationships with Tier 1 and Tier 2+ internet players,

and an assessment of the opportunities for international carriers to strengthen future relationships through an expansion of their service portfolios

- **Future of Settlement** – analysis on the limitations of the current transaction/ access settlement mechanisms, and requirements for the evolution of settlement to ensure that international carriers can create value from the full suite of use-cases they wish to serve in an NGN environment

- **Softwarisation of the carrier** – assessment of the opportunities and requirements for international wholesale carriers to benefit from three key areas of evolution: digitisation, automation, and innovation, and benchmarking carriers existing stage of development

- **Smart contracts as a future settlement mechanism** – analysis of the potential to leverage blockchain and other technologies to enable efficient trading of traffic and applications through adoption of smart contracts

“GLF is the forum where we can imagine and influence the future of the international wholesale telecommunications”

– Daniel Kurgan, BICS

international carriers globally. Decisions taken with regards to the agenda of the group, and the activities it leads or contributes towards, are taken by the Board, which meets

three times per year.

2. Company eligibility

Any company that fulfils the definition of a Global Carrier and who participate in the global digital ecosystem in an open, ubiquitous manner can apply to join the GLF. Specifically, the eligibility is defined as companies who:

- 1 Actively trade, i.e. buy and sell capacity for voice and/or data with carriers and other counterparties internationally
- 2 Own its own proprietary backbone network infrastructure
- 3 Have physical network assets (e.g. PoP) in at least two countries
- 4 Offer wholesale services
- 5 Publicly sign up to the GLF mission and agreed Code of Conduct(s)

The seats within the GLF Board are allocated to eligible companies using a ranking model that ensures that the Board represents the global industry, including the largest carriers with the widest international footprint, as well as those who are innovative and active in pursuit of the GLF mission.

Companies who do not fulfil the eligibility criteria can participate in the GLF and its working groups as Associate Members.

5.2 GLF Structure and Governance

The GLF is shaped by five principles:

1. Governance

The GLF is open for every international carrier and it is led by a Board consisting of the senior executives of the largest

3. Individual eligibility

To ensure that the GLF can implement its mission across the industry, the individuals

representing their companies in the GLF Board must be those who have the executive responsibility for their international carrier activities. Typically, these will be the CEO or the divisional head.

Their executive responsibility must cut across buy- and sell-side activities, as well as influence investment and procurement decisions. This ensures that the GLF can speak as the voice of the industry and implement its decisions across its members.

4. Funding

The activities of the GLF are funded through membership fees from the members and contribution from TelCap, the exclusive Management Organisation of the GLF. Together, the members and TelCap ensure that there is sufficient funding for GLF to undertake its activities.

5.3 Call for Participation

Success of GLF activities will be based on the scale of adoption for the outputs – for example, usage of online platforms or adoption of recommended approaches. Whilst the GLF represents many of the leading international carriers its membership does not cover the whole industry. As such, GLF openly welcomes all international carriers and other ecosystem players to engage with the outputs of its work.

Further information on GLF activities can be provided by contacting Jussi Makela – GLF Director at jmakela@capacitymedia.com

