

Anti-Competitive Behaviour

In addition to the items already highlighted and recognised by ECTEL we would like to offer some other areas for consideration

1. STAFF and non-compete contracts. Some operators contractually restrict their staff from working with other operators or their competition. Green Dot believe this to be fundamentally wrong, ethically, principally and legally. An individual should not be prevented or restricted in anyway from earning a living. The Telecoms market is small in the region, there are two main operators and a handful of small. With these clauses in the employment contract, individuals are being resigned work with that company for the rest of their life.
 - a. Organisations operate in a pyramid structure, you have more people at the bottom level then the top level, e.g for every 4 people one will get promoted over time, what happens to other 3, they have to wait till the one above moves on, company expands, or they use their experience and knowledge to apply for a position in the market. However, the market that can utilise their specialist skill is very small, it's the competition.
 - b. It is extremely unlikely I will find a BGP skilled person outside the telecom sector in the region. In the US and Europe these skills are found in multiple disciplines.
 - c. Staff are too scared to move in the fear of getting sued. They are then forced to accept limited growth and reduced options. Employers can take advantage of this when they know that the staff are limited to go anywhere else.
2. When we enter a new market, like others operators, it is normal to look at your competition for staff, as the market outside of your competitors is highly unlikely to have a skill set. If we are prevented from doing this, we need to either bring in expats, or structure in a way that reduces the local labour and outsources it to markets that have the skills and pool, contradicting one of the main objectives of creating local skilled workforce.
3. The only time it is justified to restrict employment with the competition is if you can demonstrate that the individual has strategic internal information specific to the company and it would be impossible for the individual to operate in the new position without making use of that information. This is an extremely high bar, this is strategic plans and not skills (intellectual property).

Advertising: The bigger operators have more advertising dollars, this in itself is not an issue, but when operators sponsor events and demand exclusivity from competition we feel this is unfair and anti-competitive. An event may offer platinum, gold, silver, bronze sponsorship or advertising options, if an operator takes the platinum the agreement should not prevent smaller operator getting the bronze level.

Delay is another tool that is often used to retain a competitive advantage. Operators may prolong and stretch out the decision by frustrating the process. Making simple issues into complex and then using all available timelines within the regulations to stretch it out.

Commission should have the power to fine operators that deliberately stretch out decisions. The fine should be proportional to the size of the company, so that it hurts equally.

Advertising false speeds.

Recently there has been a tendency to increase customer speeds and market 10,20,30 mbps and higher in some markets. On the face of it this looks great but in reality these speeds are hardly ever achieved when actually required. It is misleading to the customer.

If an operator is offering 20mbits and another operator is offering 5 mbits, at similar prices then the consumer will rightfully go with the 20mbits. In practice the 20mbits may only be achievable at 3am and between the hours of 7pm and 10pm when most people are using the circuit you may get only 2 mbits whereas the 5mbit operator is giving you 3 mbits at the peak hours. There should be a level of correlation of what the customer is able to actually use and that should take into consideration when they are likely to be using it (peak hours).

This would fall into the quality of service, saying it's a shared service and cannot be guaranteed is not an excuse for deliberately misleading customers.

Possible options :

- Minimum speed guarantees (70% at all times)
- Speeds at peak times should be advertised

Another misleading trick that is used is when speed test servers are put into an operator's own network and customers are asked to do speed tests inside the network. The problem is that customers are buying internet circuits, although technically your public network is part of the internet, what users rightfully think is that internet for them starts in the USA, because 90% of the content they are looking at is in the USA or beyond. Hence, speed test servers should be based in the USA, again this goes to the heart of quality and transparency. Although consumers are free to use alternative speed test servers, and operators (small) are also free to install their own speed test servers, it is misleading to the public, most of whom may not fully appreciate the underlying fundamentals. The speed tests results should reflect the expectations of the public.

Vertical and Horizontal integration

1. Digicel purchasing GCN and CW now controlling ECFS. Green Dot is seeing the adverse effects on cost of international capacity. Prohibitive or “keep them out” pricing.
2. Digicel purchasing of SportsMax. Again recently in Trinidad we experienced an extremely adverse effect of this. FLOW sports acts as a counterbalance against Digicel for CW, but for new/smaller operators this is proving to be very dangerous and costly (uncompetitive).
3. Purchasing of strategic content shows (**anti-syphoning**). Currently there are channels that operators offer to their subscription TV operators that carry many different shows. As an operator if I want to make it difficult or gain an advantage over the competition, if I go to the show owner (not the channel/network) and purchase exclusive rights for the show, then the competition will need to block that show on their network. If I do that to a few key shows, I can reduce the value of that channel on the competitor network, i.e I don't need to purchase all the shows, just a few to upset the experience of the viewer. Smaller operators cannot afford to purchase exclusive rights.
4. In addition to this, purchasing exclusive rights, because you have the financial ability to do so, will end up restricting smaller operators, if this continues to happen the smaller operators are more likely to sell their businesses to the bigger operators at a discount. If I want to purchase a smaller operator and he is asking \$5million, I invest \$1million in some strategic shows that he cannot show anymore, force him to the negotiating table and then offer \$3million for the business. The small operator will either sell or risk the business dying. Once this happens, new investors will be shy of entering the markets due to the risk of the big operators acting in a predatory manner.
5. Prevention is better than cure. Has the commission and ECTEL considered having the power to stop vertical and horizontal integration, rather than having to deal with it once it happens.
 - i. If you have a supplier, that is supplying multiple licensees with a product or service (content or backbone) that is then being resold in the retail market, then that supplier should not be allowed to be purchased, unless the product or service is easily substitutable and can be easily acquired from an alternative supplier in the market.
 - ii. This would give foreign investors some confidence that when they are investing for the long term, there is some stability of supply and demand in the market. Your regulations give some level of comfort, but investors do not like intervention from regulators, it poses a higher risk.

Threat of law-suits

Economies of Scale and bargaining power

In any business, there are economies of scale to be gained with growth and size, and here we are no different. There are two main economies that affect TV and ISP.

For the ISP its the off island capacity, even without the fact that the off island capacity is owned by the domestic operators, a small operator will be disadvantaged to the prices that a small operator will pay compared to the larger operator, due to economies of scale.

This is not anti-competitive, but it certainly is an advantage that is significant and one the regulators need to be aware off when they are looking to promote competition and investment. Smaller operators will have much higher operational costs compared to their larger competitors. Although this is the case everywhere, in more competitive and mature markets the difference is much less, and this advantage alone cannot keep new competition out, but in this region due the fragmented and size dynamics it can.

This can be dealt with the submarine cable access, we are not sure what to propose, we certainly are not against the free market economics and also prefer to have less regulations and promote more competition, but even though I do not have a solution except for the opening of the access to the submarine cable, I do feel it is a significant point to be looked at.

Another example of this is the caching servers, once an operator becomes large enough and is consuming sufficient amount of traffic, content providers (Google, Akamai, Netflix) are willing to install the content into the operators domestic network. This can account for 60% of an operator's backbone capacity. Not only are they reducing their backbone costs drastically and the hence their international capacity is much more cheaper, the fact the the content is local means their customers are able to access the content with much higher quality than customers in a smaller operators network.

Generally in other markets the content providers tend to install their caching servers at IXPs, but because 80-90% of the consumption is from inside 2 networks, the content providers are willing to give them the caching servers, also we do not have an effective IXP (and it relies on the big providers to make it effective in the first place).

Options to consider would be :

1. Caching servers are made available to other operators at cost (no profit to be made)
2. It should be mandated that a caching server must be accessible locally via an IXP

In the TV business, which is now becoming more and more part of the ISP business (IPTV), you have similar dynamics. The biggest cost on your gross profit is the content costs. Again the larger operators have much higher bargaining power than the smaller ones. Although it's unconfirmed, smaller operators pay 100% more than the bigger operators for the content, and this the biggest direct expense.

The co-op was established to help combat this issue, but since FLOW pulled out, it has limited bargaining power. Once again, I am not proposing that we outright regulate this market, but we should look at and explore what can be done to assist more competition.

If left to the free market economics then, the smaller operators will become squeezed out, small operators tend to be local/regional entrepreneurs, who do not have the capacity or access to resources like the bigger international operators.

Recent announcement of Liberty purchasing CW will further compound this, as Liberty has very strong relationships with content providers and CW can benefit further from this. Digicel recently announced a deal with NBC through its relationship with Comcast. In isolation these may be great business strategies, great for the shareholders, but in bigger picture of the caribbean, it makes it extremely difficult for smaller competitors and for the attraction of new investors.

When Green Dot tries to raise finance and look for strategic alliances, a market analysis is done, time and time again the size and power of the two regional operators is used to put a high risk premium on the project for any investment.

Green Dot is not yet in the voice market, and hence our input will be limited and immature. Assuming most of the calls/business if for domestic or regional calls, and over one's own infrastructure some of the economies of scale issues that arise don't come into play.

However larger operators will be able to negotiate much better roaming rates, and as such can offer attractive packages to the international travellers, business users who will be the top end of the market and the most profitable.

Again as far as the free market economies are concerned we should not penalise companies for being successful, but in every single market there is a level of management and intervention, to ensure a certain balance for the best interest of the market, consumers, economies, investments.

One of avenues the regulators should consider is a tiered fees system, for concession and spectrum fees. Based on some metric to measure the size of the company (revenue, or subscriber base) your concession fees increase (similar to progressive tax systems in other countries). This will not eliminate the barrier but will go along way to assisting or taking some pressure of the smaller companies, and hence promoting investment and competition.

The longer an operator has been in the market the more entrenched it becomes (more of its CAPEX having been recovered resulting in lower marginal operational costs) and the more difficult it is for an external investor to come into the market, one option to consider is for every year after the last operator came in, a 10% discount on the annual concession fees is given (similar to tax concessions given) but then loses 10% of the discount for every year of full operation. E.g if a new entrant came into the cellular market today, then the last entrant being Digicel was over 10 years ago, the new operator is give an incentive of 100% discount on fees, it looses 10% for every year of operation so that after 10 years it is paying the same as the others.

This would be extremely attractive to Green Dot and other potential competitors. It reduces the risk and would allow a more aggressive entrance into the market, resulting in higher probability of success and quicker.

Annex A

Section 3 (4)

Sometimes other services (unregulated) and new startups need access to telecom services/facilities which the operators refuse, thus limiting the local entrepreneurship and innovation.

Annex B

PART II

Sections 5,6,7,8

This sections deals with unbundling and giving new operators the opportunity to enter the market with lower risk.

Green Dot does not have enough intricate knowledge of how this would work or about the elements that could be abused by the SMP. This strategy worked very effectively in the UK and introduced many local operators on the LLU, who themselves eventually grew to build out their own infrastructure, later consolidation took place and eventually it became known as Virgin.

The key factor in this will be the cost, the regulators will need to ensure that the prices that charged to access the infrastructure are competitive. Green Dots main concern is that this will not happen and that the SMP will be able to convince and justify a price that is prohibitive.

If the pricing is competitive then Green Dot may consider investing and using this infrastructure to complement our existing investments and to even increase our service offerings, if not competitive Green Dot would have to continue on its current strategy

Annex B
PART III
Section 11

In Green Dots opinion this is an extremely critical section, and one which will dictate the wholesale price to the smaller competitors like us. It is therefore of great interest how the regulator is able achieve the correct pricing. Green Dot is concerned that creative accounting may be done here that makes it difficult to get a competitive price. Green Dot does not have sufficient financial expertise or knowledge to be able to contribute more than just raising a caution.

Section 5 (4)

The regulator needs to appreciate that the cost of towers CAPEX and OPEX plays a completely different role in a cellular operators business model compared to a fixed wireless access model. The cost we are able to incur in both CAPEX and OPEX is significantly lower than what a cellular operator can accommodate. In the cellular model a tower will generate much more revenue than in a FWA model.

E.g to cover a country you may need 25 towers, with these you can accommodate 50% of the market (60,000 subscribers). For a FWA 25 towers can not accommodate anywhere near that number it would be more like 8,000 at MAX. In addition to that a FWA subscriber (internet browser) will spend much more time utilising the services/resources than someone making a call so the contention ratio for cellular model is much higher than for a FWA. Hence an FWA operator has to be much more efficient and innovative when it comes to dealing with towers.

Please do not force the FWA or new operators to use a model that may not be best suited. We would love to collocate on the towers and avoid having to invest ourselves, but this is only a benefit for us if and only if the cost of collocation is lower than the cost of doing it ourselves.

Regulator should consider allowing an operator to build their own tower if they decide it is more beneficial for them, but at the same time regulator should try to enforce these regulations on all tower owners and aim to drive the price of collocation down so that it is NOT cheaper to build your own towers. You should not take that choice/option away. There is new technology and solutions coming out all the time, the operators should not be restricted to gain the most benefit out of these new technologies by these regulations.

Regulator should consider making this section applicable to the SMPs and not burden the new players, give them the opportunity to grow before they are burdened with this.

Section 6

For a small operator especially a new entrant, planning 12 months in advance would be challenging, the first few years are very dynamic and fluid or while you are small it is dynamic.

Regulator should consider making this section applicable to the SMPs and not burden the new players, give them the opportunity to grow before they are burdened with this.

Subsection 2 a refers to wired services, and Subsection 2 b refers to mobile, does this mean FWA services are exempt, as it will be very difficult for FWA to share its radios.

Also subsection 2 b requesting the sharing of the radios, takes you into an MVNO model, is this the objective/option on the mobile side ?

Section 7

Does this affect FWA

If and when Green Dot enters the mobile space, we do not foresee this to be an issue

Section 8

Does this apply to FWA

If and when Green Dot enters the mobile space, we do not foresee this to be an issue

Annex D

Submarine Fiber

Access to the actual submarine fiber is more important than access to the landing station.

If we had multiple independent fibers terminating at a landing station, then access to the landing station makes sense and introduces competition. However, as the owners of the landing station also own the off island cable then any cost reduction you may create by getting access to the landing station will/can be transferred into the fiber costs.

Access to landing station makes sense for any new submarine cable that is installed, however in this case the cost of having to build a new landing station is very small part of the project., about 10% or less. Getting access to the landing station will not cause or increase the possibility of a new independant cable, because the domestic demand, 90% or more, is controlled by the two operators and hence the new cable will be chasing the remaining 10%.

I can provide feasibility studies if required, but the cost of running a cable similar to ECFS is about \$80million USD, of which 85% is the wet part.



What is needed is access to the existing fiber and below are some of the options.

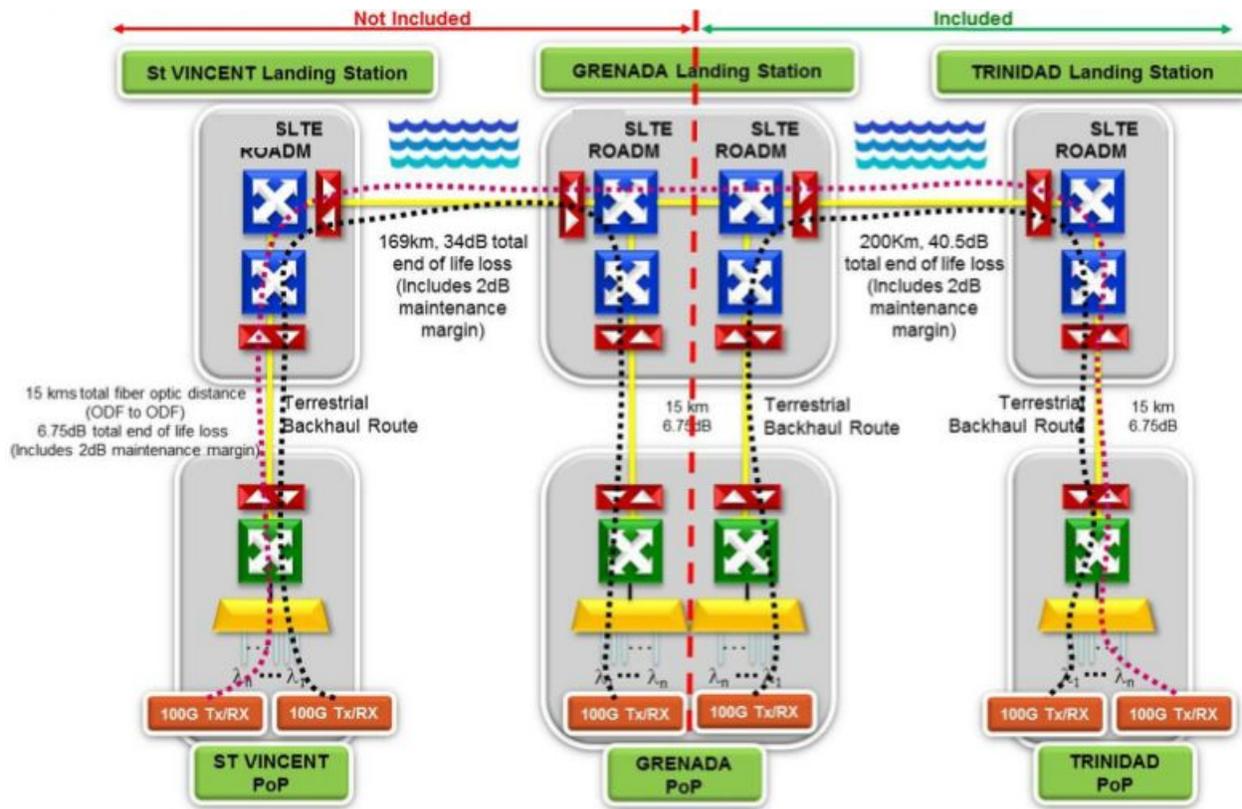
- Each fiber GCN and ECFS has multiple strands or pairs of fiber. Currently not all of the strands are lit or used, and highly unlikely they will ever be. Hence we should look at reselling the fiber strands. The above \$80million USD would get you 24 fibers. That is about \$3.3million per strand.

- In each strand you can have multiple wavelengths (frequency channels). 44 lambdas is common and now 88 is also possible with most equipment now. \$3.3million/44 is a \$75,000 per wavelength. Each wavelength can do 100G or 200G with 400G next year. Each 100G card can be split into 10 x 10G ports that brings down the cost to \$7,500 for a 10G port

The above is an extreme example, there are many factors that have not been considered, but it does demonstrate that there a huge scope to reduce our international capacity costs making it more competitive for competing smaller operators and new operators and businesses. Also if the costs were cheaper you may see content providers like google, facebook, akamai willing to invest more in the region, currently the bandwidth costs prevents that from happening, so in return they end up having to partner with the big operators at the detriment of the smaller operators in the region.

Although we believe in free market, the ECTEL markets and caribbean are so small, there is lack of players which makes it very easy for a company to achieve a monopolistic position.

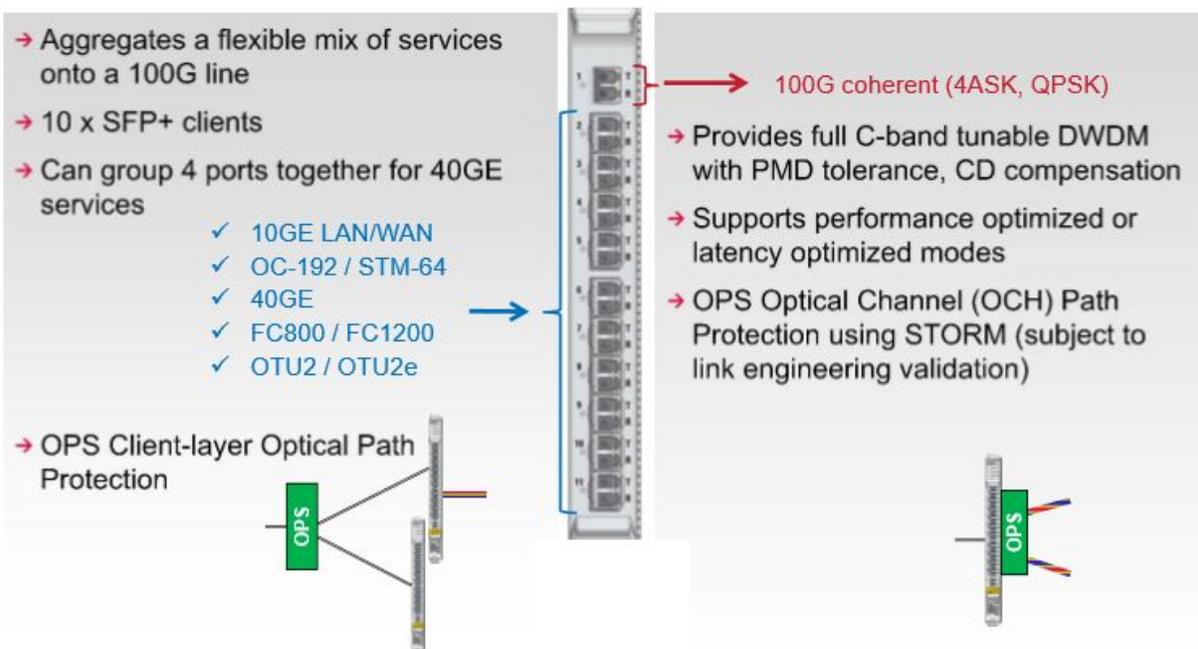
- Operators should be allowed to own/buy the submarine fiber (vertical and horizontal integration) should be controlled
- They should be forced to sell capacity to smaller operators in a way that allows them to compete fairly in the market. If I am competing against FLOW and Digicel in the domestic broadband market, and I am also having to buy my backbone from them, then they are earning regardless of whether the customer is on their network or our network. So if they lose a customer to Green Dot they are making up for it by charging a high rate on the backbone.
- The cost of capacity in a UK datacentre is \$2usd per mb, in the USA it's about 1mb, in ECTEL member states its \$150USD+
-



The yellow trapezium box is the wavelength splitter CMD44. It can support 44 wavelengths, each wavelength can be 100Gb or 200Gb, with 400Gb. Each wavelength is driven by the 100G Tx/Rx card. Hence each CMD44 can support 44 cards. Each card at 100G gives you 4.4TB of capacity on one fiber.

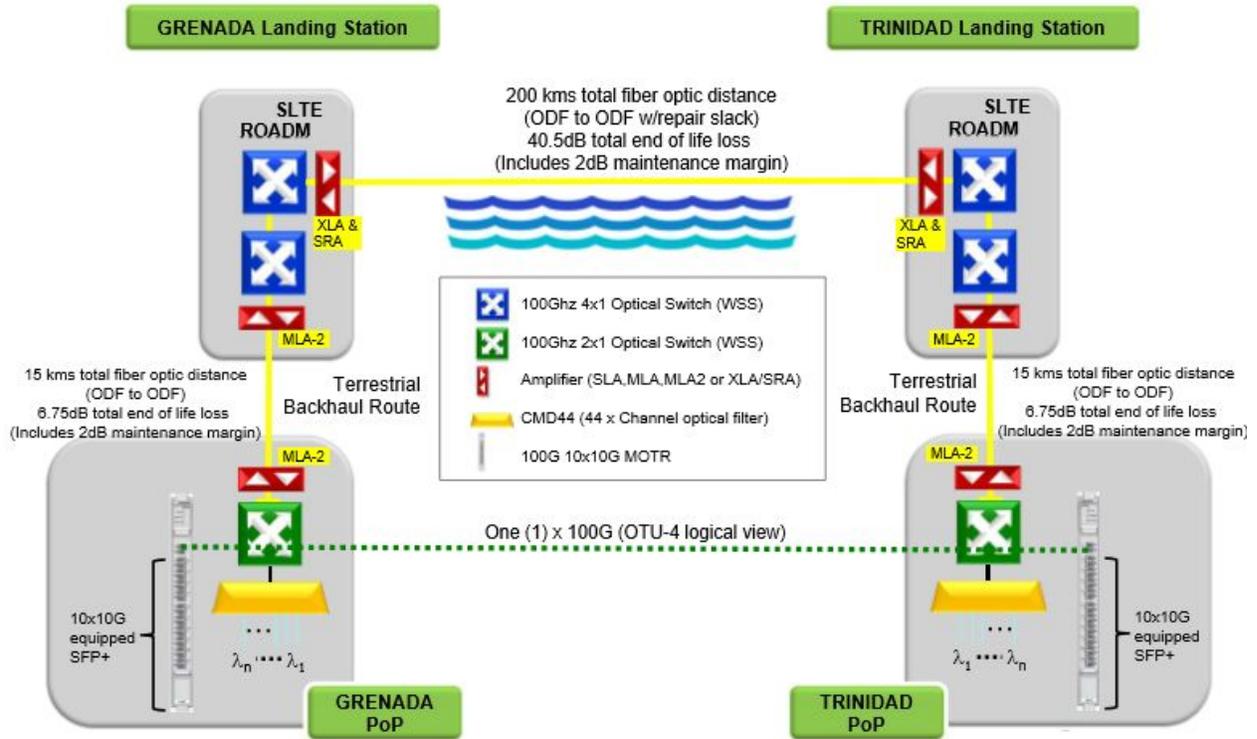
Client Protocol	Client Rate	OTU Rate	Mapping	Transparency
OC-192/ STM-64	9.95328G+/-20ppm	OTU2 10.709G+/-20ppm	Asynchronous Mapping Procedure (AMP), PT= 0x02	Data and timing transparent
			Bit-synchronous Mapping Procedure (BMP), PT= 0x03	
10G-BASE-W	9.95328G+/-20ppm	OTU2 10.709G+/-20ppm	Asynchronous Mapping Procedure (AMP), PT= 0x02	Data and timing transparent
			Bit-synchronous Mapping Procedure (BMP), PT= 0x03	
OTU2	10.709G+/-20ppm	OTU2 10.709G+/-20ppm	Transparent ODU2 REGEN	ODU transparent, timing transparent
	11.09G+/-100ppm	OTU2e 11.09G+/-100ppm	Transparent ODU2e REGEN	ODU transparent, timing transparent
FC-1200	10.51875G+/-100ppm	OTU2e 11.09G+/-100ppm	Transcoding + GFP-T, PT=0x08	Data and timing transparent
FC-800	8.5G+/-100ppm	OTU2 10.709G+/-20ppm	Generic Mapping Procedure (GMP), PT= 0x0F	Data and timing transparent
10G-BASE-R	10.3125G+/-100ppm	OTU2 10.709G+/-20ppm	GFP-F, PT=0x05	Ethernet MAC transparent
			GFP-F with Ordered Sets transparency, PT=0x09	Ethernet MAC and preamble and ordered sets transparent
		OTU2e 11.09G+/-100ppm	Bit-synchronous Mapping Procedure (BMP), PT= 0x03	Data and timing transparent
40GBASE-R	41.25G+/-100ppm	OTU3 43.01841G+/-20ppm	Generic Mapping Procedure (GMP), PT= 0x07	Data and timing transparent

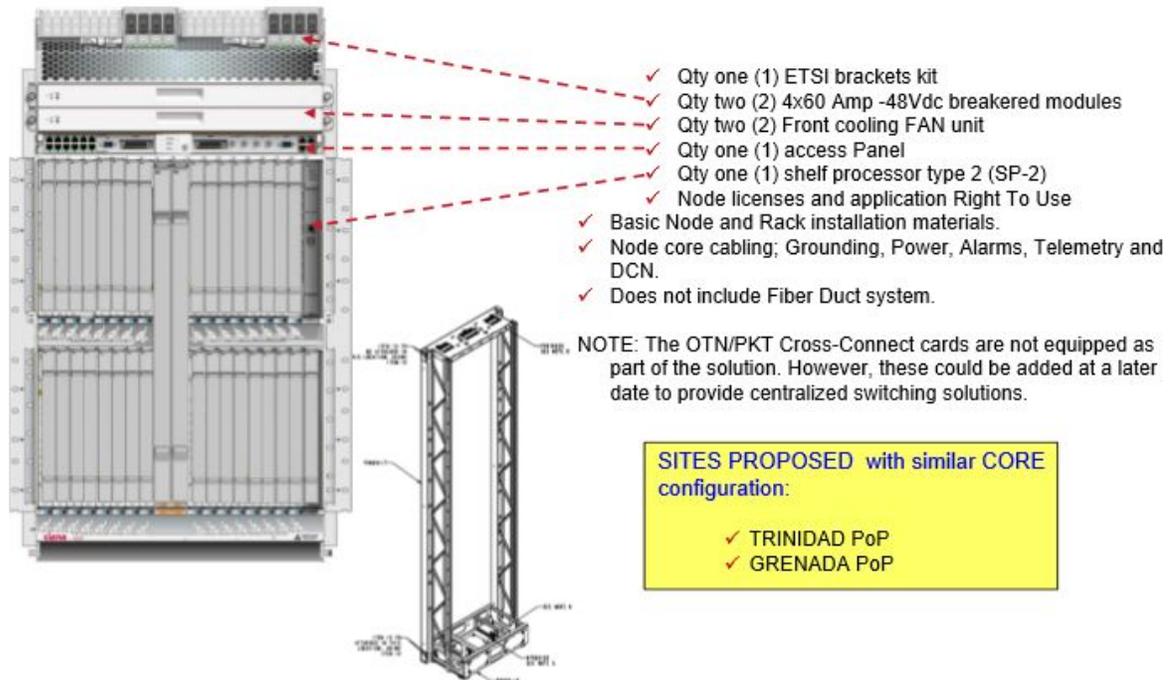
In addition to the STM-X interfaces/protocols indicated in the regulations, you have the following interfaces. Regulations should not restrict to STM-X protocol, but should cover all generally accepted protocols.



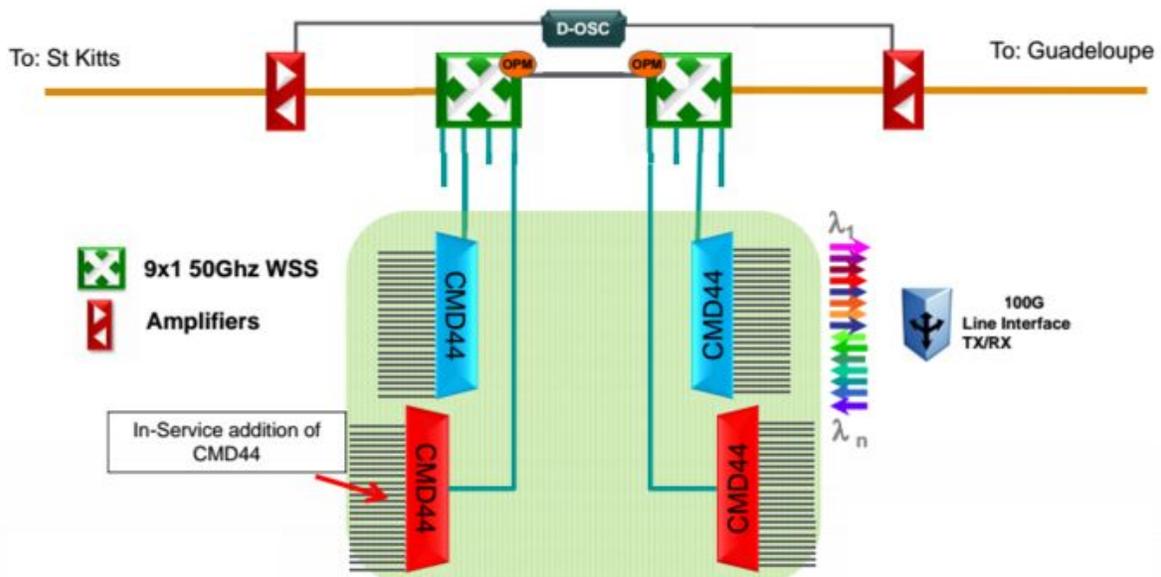
Each CMD44 supports 44 wavelengths. Each wavelength supports 100G, each of the cards can be configured to support multiple interfaces that will make up the 100G. In this example you have 100G port at the top feeding into the fiber (CMD -44) but below you have 10 x 10G ports. Each port can be sold/leased to another licensee. Card can mixture of ports.

If you wanted you can then take that 10G port and add a normal switch that has 1G ports, allowing you to further break down the 10G port.





This image illustrates space needed. This is a standard rack. Each of those vertical cards can support 100G and drive a wavelength.



It is possible to get upto 88 wavelengths down the same fiber, each giving you 100G so that is 8.8TB of data.



This is the phase 1 of the project that we were trying to put together. The cost of phase 1 is coming to about \$80 million with over \$65million for the wet part and about \$15million for the dry part to include a landing station and the equipment.

A more in depth educational presentation may be possible by the vendors, if the regulators think it will be beneficial for them to get a deeper understanding of what is and isn't possible to help in the most effective regulations to introduce competition and regulate the SMP.

Annex D

Section 5

Although it's a good and fair section, it has little value, because of the vertical integration and ownership of the only two cables. Getting access to the CLS on it own does not give you any benefit, as there is no independent cable.

Having IRUs does increase the value here but emphasis needs to put on regulating the price of the IRU.

Being able to purchase a wavelength adds much more value, and in which case access to the optical amplifier and MUX should also be made available.

Finally if there are dark fibers not being used, a new operator should be able to acquire it.

An international submarine cable requesting access to the CLS should be considered and regulated. If someone wanted to lay down a third cable they should have access to existing CLSs.

Access to CLS should not only facilitate wired connectivity but also wireless, and as such poles or mini tower should be provided at the CLS location.

Section 9 (e)

These are more transmission standards than speeds. We should not restrict to these standards as more and more equipment is moving to ethernet. It may be cheaper to operate a 10G port than a STM-16.

We recommend you just look into this ensure that it meets your objective and doesn't exclude technologies that you may think are included.

E.g If I request an STM-1 circuit from St Lucia to Dominica. Then under these regulations the CLS (GCN or ECFS) would not only have to provide me this circuit at a fair price, but also give me access to the CLS at both points because both points are in markets covered by these regulations. So let us say the cost of the STM-1 is \$10,000USD/month.

What if I request an STM-1 between St Lucia and Trinidad. Can the CLS/cable operator say the cost of the STM-1 is \$20,000 because we in St Lucia are charging \$5k but the Trinidad side is charging \$15k and Trinidad is not covered by these regulations.

Or they say the STM-1 is \$10k per month, but although you have access to the CLS in St Lucia you cannot have access to the CLS in Trinidad and the local domestic operator (part of the cables group company) has to provide the last mile and they are charging us \$10,000 per month for that last mile.

The same if I wanted to get a circuit up St Croix, do these regulations extend or ensure that there are no loop holes of this nature that can be exploited and diminish the objectives.

Who is an Eligible Operator ? If google, facebook or Akami wanted to install there servers/infrastructure in a member state at the IXPs and they wanted to acquire capacity on the submarine cable, would they enjoy the protection and enforcement of fair pricing under these regulations ? May be ECTEL should consider special discretionary Eligible Operator status for companies such as google that can be encouraged to invest locally.

What if BT, TATA, Sprint, AT&T wanted to purchase capacity on the circuits directly to the CLS, could they do these under the remit of these regulations and then resell that capacity to local eligible operators.

Things to consider:

ECTEL should consider mandating selling of wavelengths. This is very common and very beneficial to the market and effective at driving down prices and creating competition.

This will be much more effective than just STMs circuits. The Eligible operator can purchase a wavelength and then sell its own STMs into the market directly competing against the current submarine operators.

Annex E

Part III

Section 10 (2)

When the two operators have an equal balance of off net traffic then the interconnect rate is of little importance to the operators, but it affects prices to the customers. More importantly, if this rate is high, then it becomes a barrier for a new entrant into the market, as the new entrant is likely to have a larger portion of off net traffic on the other networks than what it has from the others on its own network.

Section 10 (3)

Where an SMP is about to make a price change for a retail service which it also sells as a wholesale service to its competitors not only should there be a corresponding change in the price on the wholesale side, but the SMP should notify the wholesale customer (competitor) 60 days in advance. Otherwise even if there is a change in the wholesale price, it may take 30-60 days for the competitor to make changes to internal systems, advertising, marketing etc... and during this window the competitor will be at a disadvantage to the SMP.

Maybe even limit the frequency of these changes, if it is likely to be onerous on the wholesale customer.

Part 4
Section 12

This is an important issue to be dealt with.

Part 5
Section 17

Will the commission be only changing the list once a year ? A year is a very long time in the small markets such as ECTEL member states, operators with huge financial resources can cause major damage to the market within a year

Section 18 (1)

Looking at the cycle, 60 days + 15 + 15 + 60 = 150 days (5 months), that is nearly half the year. Leaves room for exploitation.

Although Section 18 (2) deals with changes in tariffs on services in the market, it may be easy to keep introducing new services by making slight variations. E.g 5mb service is now introduced as a new service of an existing 6mb or 4mb.

Section 20

We believe there is room for abuse here. Would the following be allowed

Prom 1 = 30 days
Prom 2 = 30 days
Prom 3 = 30 days
Prom 1 = 30 days
Prom 2 = 30 days
Prom 3 = 30 days
Prom 1 = 30 days
Prom 2 = 30 days
Prom 3 = 30 days
etc...

Part 6
Section (12)

Green Dot believes it is highly unlikely that an imprisonment sentence would be given, also it may be unfair to individuals (employees) because they will be acting under instructions and usually under instructions of someone outside of the country. Maybe you should consider holding the CEO/country manager responsible or the directors personally liable.

A fine of \$10,000 is seems small. \$10,000 for a company that is potentially worth \$30billion or \$15billion is minor and not a deterrent. The decisions and strategies are made by the Group and they often may allow one part to suffer if it is in the interest of the group in a wider picture and longer time frame.

Other items to consider:

MVNO

Cellular MVNOs are very common in all other developed markets, they allow for competition in a number of different ways.

1. In sufficient spectrum to accommodate more than 3 operators
2. Cost barriers to entry (CAPEX)
3. Controlled OPEX

It is a proven model that has introduced competition in many markets. If it already has not, ECTEL should consider MVNO operators. Green Dot would be interested in this type of model.

- There are about 300 MVNOs operating in the U.S., and they are estimated to make up about 1 in 10 wireless subscriptions, or about 36 million. That number has roughly doubled since 2009, thanks to a trend of the big networks allowing customers to more easily switch networks and a significant decrease in the cost of wholesale network capacity rates(**source: wikipedia**)
- As of June 2014, 943 MVNOs and 255 MNO sub-brands were active worldwide. This represents a total of almost 1,200 mobile service providers worldwide hosted by MNOs, up from 1,036 in 2012,^[8] which in turn are operated by 503 companies (some companies operate multiple MVNOs in the same country)(**source: wikipedia**)
- In 2003, the [European Commission](#) issued a recommendation to national telecom regulators (NRAs) to examine the competitiveness of the market for wholesale access and call origination on public mobile telephone networks. The study resulted in new regulations from NRAs in several countries, including [Ireland](#) and [France](#) forcing operators to open up their network to MVNOs (**source: wikipedia**)

Follow me numbers, Efax, virtual PBXs

In the UK and USA they have some additional facilities that rely on the regulated services but are run by independent companies. To assist in the development of the ecosystem and to create competition and innovation following are some of the services that could be enabled or service providers should allow open interface to enable and the regulator can assist on the number resources where necessary.

1. Follow me numbers : This is where the regulator issues a punch of numbers (08832XXXXX) which are virtual number or redirectable numbers. I as a user will go online and pay/FREE register one of the numbers to myself, and then I configure it to point to an actual number. When I am on the road I would point it to my mobile, when I am at home I can then redirect it to my home. It can be used as a temporary number or business number. The service is usually offered by independent businesses. There is an interface like in number portability, to a database that tells the operators which is the actual number that needs to be called.

<https://www.flextel.com>

Other features and services that can be offered are :

<https://www.flextel.com/features/>

2. Efax : I can set up fax number in the UK by going to an online website, within 10mins. I am allocated a local number. When a fax is sent to the number it takes the fax and sends me an email. Essentially there is a server with a bunch of modems connected to either a service provider or interconnect, a bank of numbers is allocated to it. When a fax is sent the modem responds and via software email is sent.
3. Virtual PBXs or hosted PBXs, again very common in the USA, where I can host a PBX in the US and have phones around the world. The PBX hosting company has telephone numbers that it can assign you.

Regulator assigns a bank of numbers to a PBX phone operator ABC Ltd, who then interconnects with the other telcos (SIP trunks). All the numbers (trunks) are terminated into a switch with virtual PBX system controlling them.

I as a real estate agent contact ABC Ltd and request a hosted PBX service with 4 trunk lines. I have 4 offices, I get internet from any operator and then get VOIP phones to configure to ABC Ltd (3 extensions per office).

ABC can offer (fax, efax, PBX, IVR, callback services, etc...) I don't need to invest in a PBX and I am not tied down to any operator. With number portability I can take my number from ABC if I am not happy.

If ABC Ltd has 5 companies using their service then any calls made between those 5 companies will be on-net. If ABC Ltd is operational in multiple member states it can then also drive down the inter member call prices.

It's a way to introduce competition into the market, drive down prices and also drive innovation.

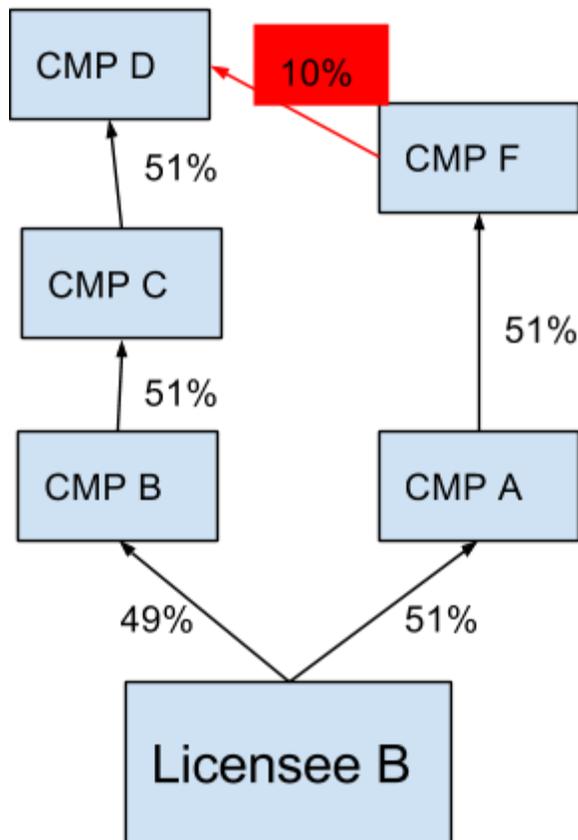
4. SMSs services. Go online and send BULK SMS, or to allow an automatic system to send out a SMS text for bill payment, bill reminder, etc... This requires the cellular operators to offer an interface (IP) that 3rd parties can connect to. It is extremely common around in other markets. Although it is diminishing as newer OTT services are taking over, there is still some opportunity to be gained.

IXPs and open access to support growth of services

In this situation who according to the EC Bill has control, is it CMP C and CMP A for Licensee A and Licensee B, respectively, or is it CMP E and CMP F. In reality the control is with CMP E and CMP F as they control A and C.

Furthermore CMP E is controlled by CMP G. Assume you have done all vetting all the way upto CMP G and have issued two licenses.

If now CMP G buys 51% interest in CMP F, does the EC bill give the commission the power to stop it from happening, because in this situation G would have control of both Licensee and Licensee B. My interpretation of the EC bill is that it doesn't.



Slightly different situation, if CMP D purchases 10% of CMP F, you would have change of control, is this covered by the regulations.

Freephone number for reporting issues

This will be more onerous on Green Dot or any provider that is not in the voice business, as we will be purchasing/paying for every call, but the voice providers can do this much more easily, infact I think they already do it, where calls to helpdesk from their own network are free.

We are happy to offer VOIP alternatives (Skype, chat, online help-desk). Or the regulator should regulate the cost of the toll free numbers for smaller operators.

Complaints Tribunal

We don't think a tribunal option for a complaint should be enforced, it seems unproportional burden on operators. Regardless of win or lose, the cost of a tribunal for operators will be so high that it will always be cheaper to settle and hence we will end up having to settle all complaints, creating a culture in the market (resulting in higher costs over all for the rest of the market). Look at the insurance claims market in the US and UK, most of the time insurance companies just pay, because it is cheaper than challenging in the court, and this has created a culture of claims, the result is that the insurance prices are extremely high.

I suggest the NTRC provides an option for the customers to complain to the NTRC, who vet the claim and if they feel there is merit, then engage the operator.