Bahrain's Internet Ecosystem: 2011 Trends

30 June 2011

Contents

Key Findings

At the request of the Bahrain TRA, Renesys periodically evaluates the blend of transit provider alternatives that are available to Internet Service Providers in the Kingdom.   Using BGP routing data collected from several hundred vantage points around the world, each provider's transit choices are summarized to provide insight into the current state of the market.

Around the world, international transit provider diversity is a key driver of stability, quality, and price in each domestic market.   As the number of physical and logical paths to international providers increases, competition in the wholesale IP transit marketplace generally results in significant benefits for businesses and consumers that use local providers to connect to the Internet.

This report provides a midyear refresh of the state of the Bahrain Internet ecosystem, as seen through the lens of transit provider choice.   In the twelve months ending July 2011, a few trends are clear.

- Compared to 2009 and years prior, many more providers are taking advantage of the availability of Flag transit.   Those numbers appear to have stabilized, and Flag now plays an important part in the transit strategy of many Bahraini providers, including Zain Bahrain, Nuetel, Mena Broadband, and LightSpeed, in addition to Batelco.
- At the same time, the momentum in customer base growth belongs to Saudi Telecom, whose new connectivity (based on GCCIA dark fiber, to support the growth of Viva's 3G services) continues to attract significant new business.
- Tata's customer base has now stabilized at a level consistent with the increased competition from Flag and Saudi Telecom.
- The Bahrain Internet Exchange, a major customer of Tata and the last Bahrain transit customer of Etisalat, continues to face challenges as it adjusts to the role of minority backup transit provider for many of the Kingdom's ISPs.

- Bahrain's "largest provider market share" continues to fall, suggesting that competition among service providers is effectively preventing any single provider or pair of providers from achieving a dominant on-net share of the national market.   Multihoming (the use of multiple providers for redundancy) prevents provider market share numbers from adding to 100% in the following table of on-net percentages for NSPs classified by Renesys as Bahraini domestic providers with international transit.

| CC	ASN	NSP	Jul-07	Jan-08	Jul-08	Jan-09	Jul-09	Jan-10	Jul-10	Jan-11	Jul-11
BH	5416	BATELCO-BH	41%	45%	55%	40%	34%	31%	27%	21%	20%
BH	31452	Zain Bahrain	4%	4%	7%	24%	27%	27%	33%	25%	26%
BH	39015	Menatelecom	2%	2%	1%	5%	10%	15%	17%	26%	24%
BH	35019	Bahrain Internet Exchange	51%	45%	31%	32%	36%	26%	21%	29%	17%
BH	41426	STC/Viva	--	--	--	--	--	--	--	24%	27%

Methodology and Interpretation

Renesys continually monitors the global Internet routing table, synthesizing second-by-second changes in the advertised paths to every connected network on earth, and measuring round-trip latencies to those networks from around the world. Years of consecutive continuous observations are then mined to produce summaries of evolving interprovider relationships in each country, and each region of the world.

Transit shift plots present a histogram of a given provider's route selection percentages to each of their upstream transit providers, summing to 100%. The thickness of colored bands gives a visual indication of the importance of each provider in supplying Internet transit to the autonomous system in question over some lookback period (in this report, the trailing 12 months ending June 2011). Below the histogram, the unnormalized customer base is plotted as a line plot, to give a sense for the growth or loss of transit volume over the lookback period.
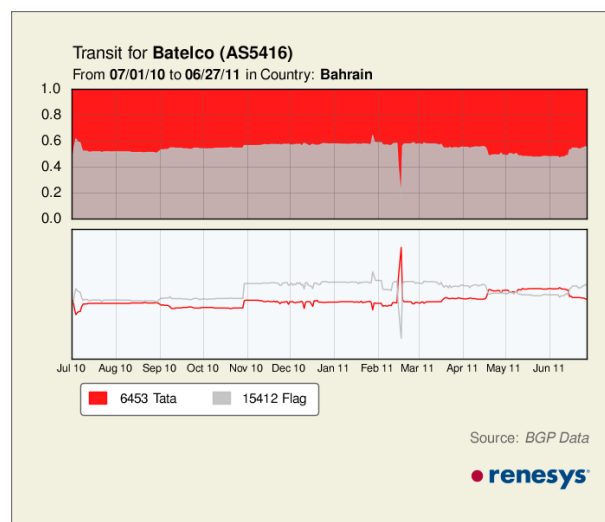

Customer transit plots provide equivalent information for the provider's customer base, indicating the relative contribution of each downstream ASN to the provider's total customer base. As with the regular (upstream) transit shift plots, the customer transit plots consist of a normalized stacked histogram on top, and an unnormalized line plot of the same customer base size data below.

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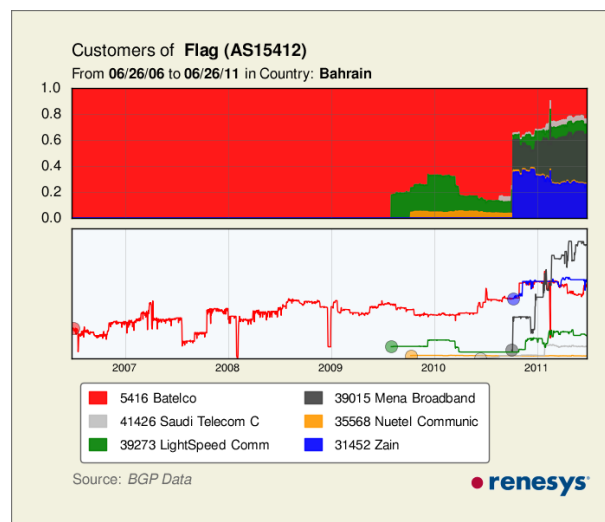
Transit Providers

By 15 July 2011, the provider relationship map of Bahrain had changed significantly, with new transit from Saudi Telecom strongly in evidence.
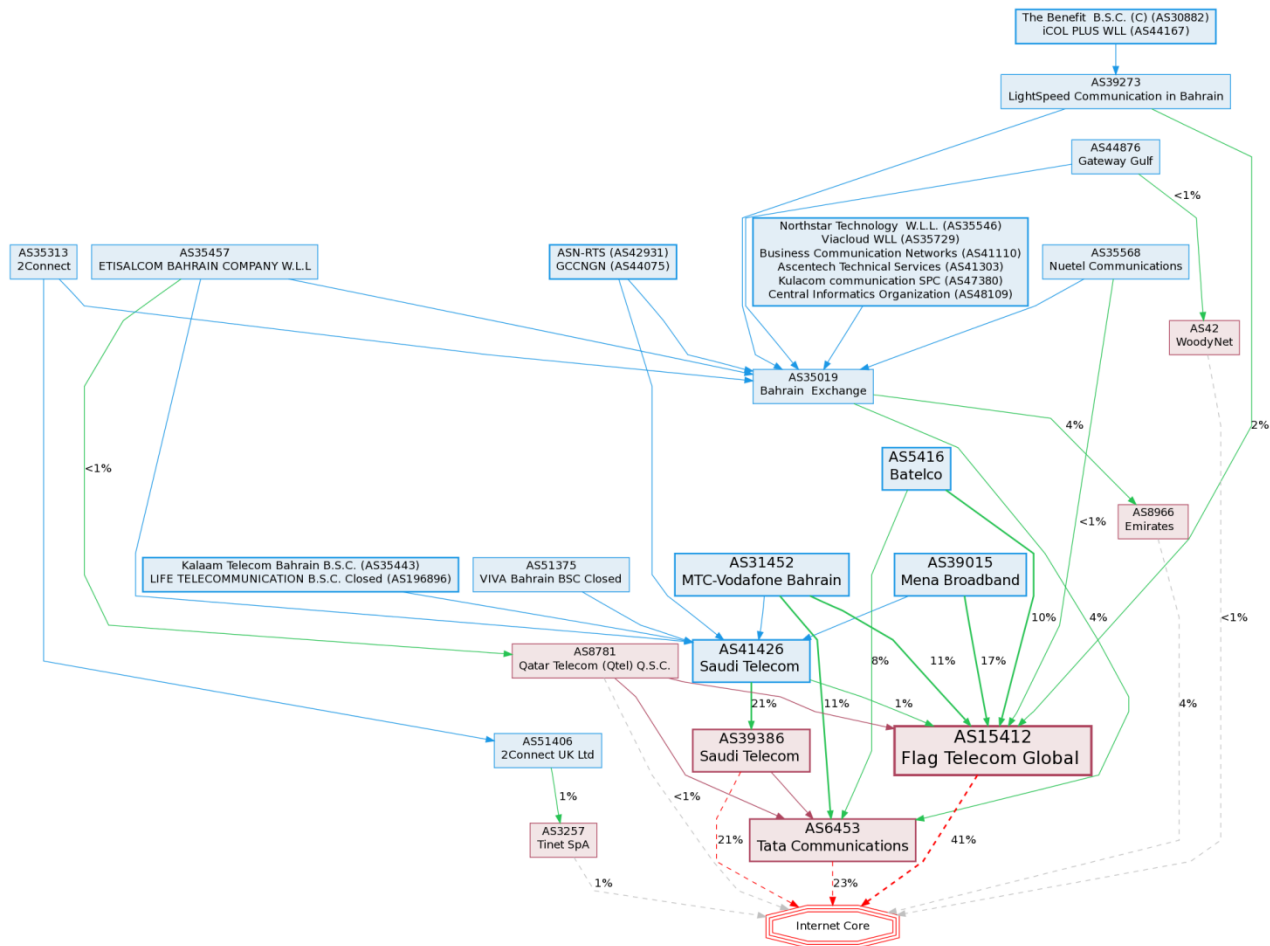

In the following sections, we examine transit shift and customer transit plots for a cross-section of the key transit providers in Bahrain. Transit shift and customer transit shift plots show the evolution of international transit choices made by providers in the last 12 months.

Zain

Zain's transition from Etisalat to Flag in November 2010 was followed by the addition of a small amount of Saudi Telecom transit in March 2011.

At present Zain is actually triple-homed: a Batelco-like blend of Flag and Tata, with a little Saudi Telecom added in.
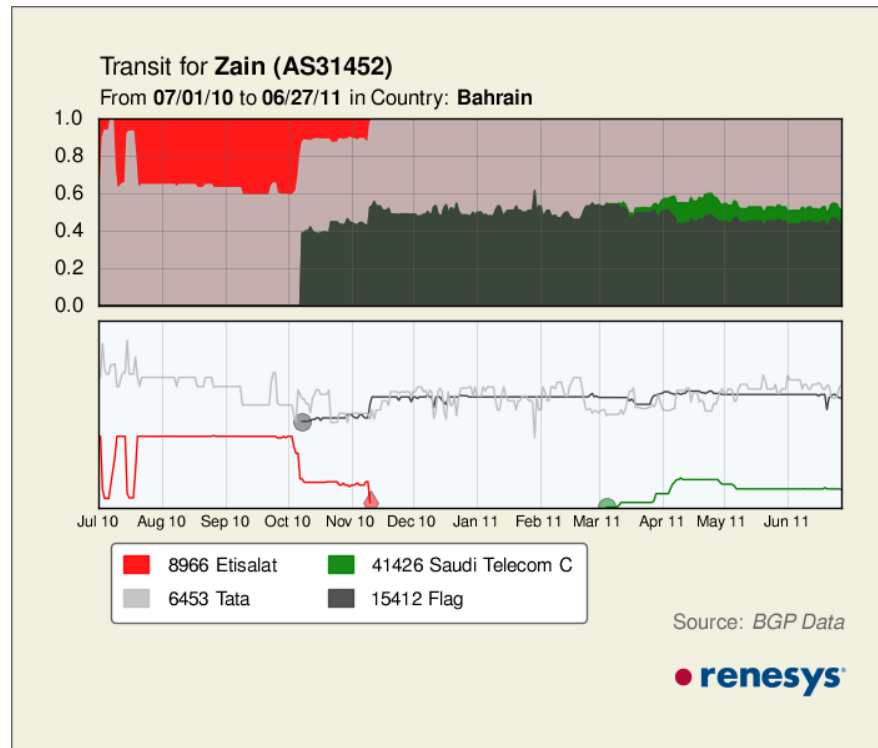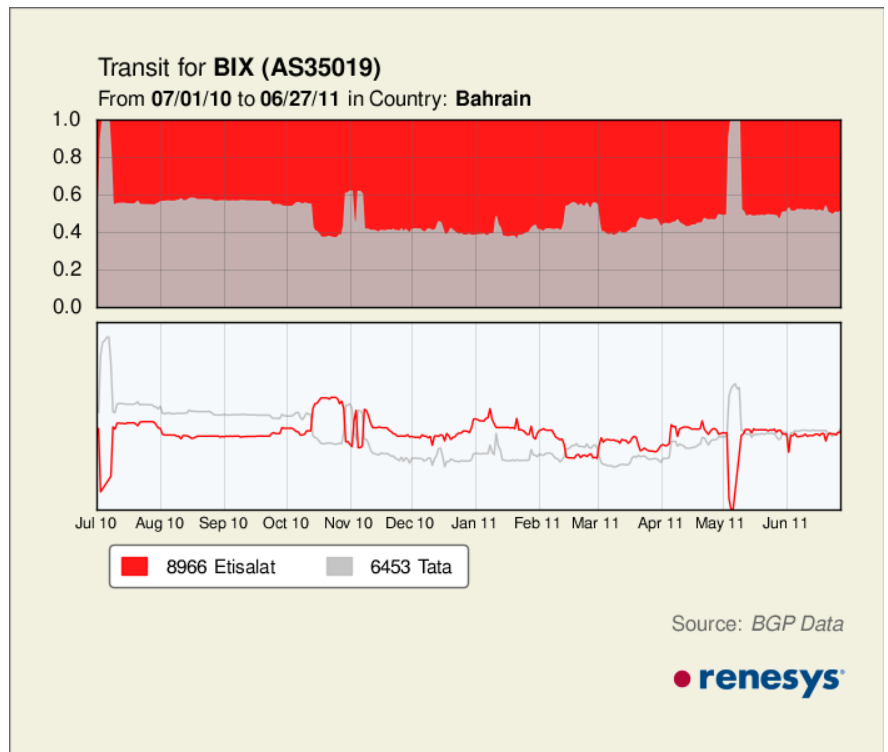

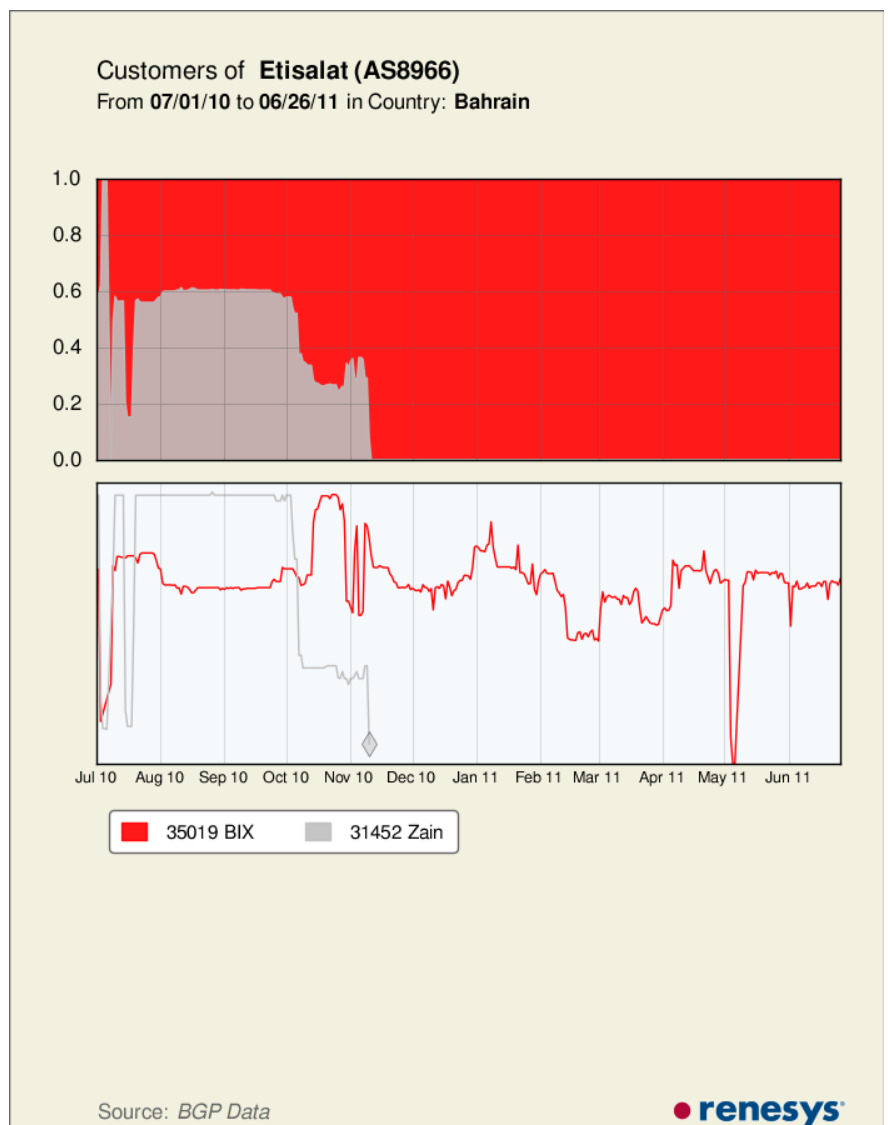## Bahrain Internet Exchange and its customers

The Bahrain Internet Exchange's customer base continues to be a mixture of small single-homed providers (Kalaam, Ascentech, Kulacom, Viacloud, Northstar, etc.) and backup transit for some larger multihomed providers (Mena Broadband, 2Connect).
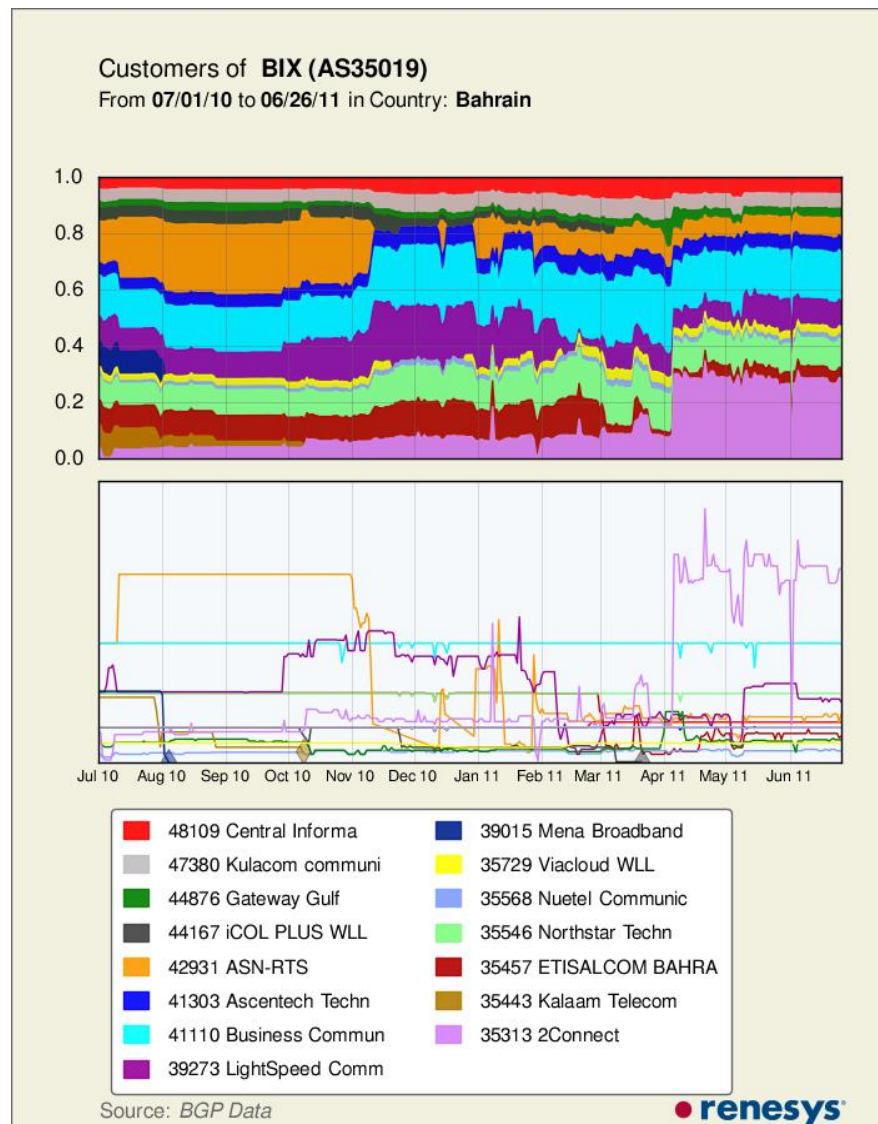
The BIX continues to send its traffic through Etisalat and Tata, with total transit volume (in terms of customer base) stable or declining slowly over the past 12 months.

Transit for **BIX (AS35019)**
From **07/01/10** to **06/27/11** in Country: **Bahrain**

8966 Etisalat   6453 Tata

Source: *BGP Data*
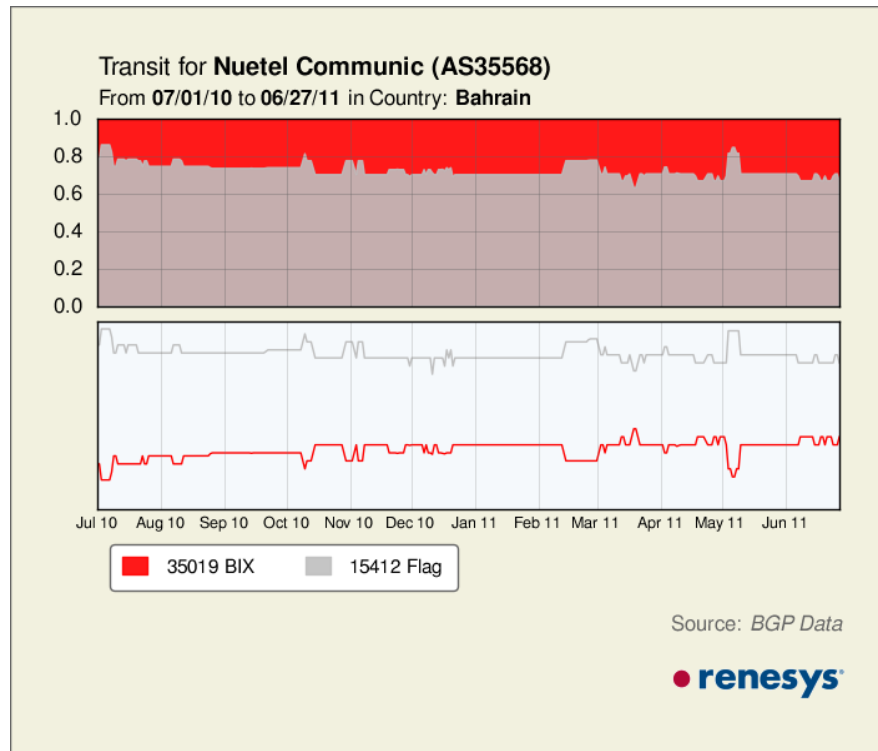
In fact, the BIX is now Etisalat's only significant transit customer in Bahrain, since Zain Bahrain moved to Flag transit in November.

Customers of **Etisalat (AS8966)**
From **07/01/10** to **06/26/11** in Country: **Bahrain**

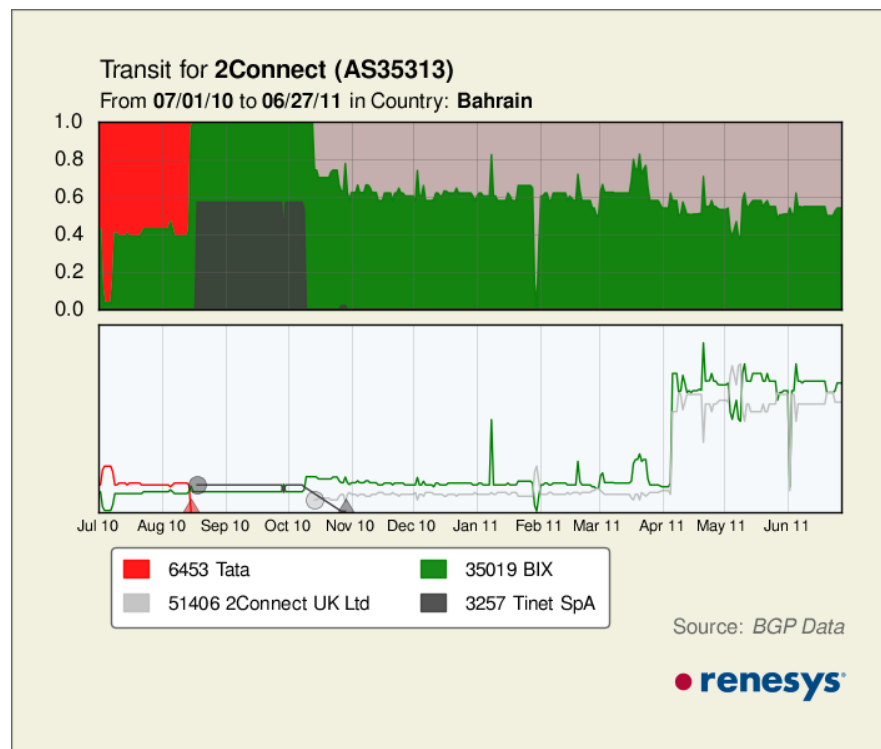35019 BIX   31452 Zain

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Source: *BGP Data*

After a sequence of defections in 2010, the BIX has retained some of its multihomed customers in 2011.   However, it increasingly serves as minority backup transit for these providers.

Nuetel continues to multihome to BIX and Flag, with roughly 75% of transit through Flag.

Transit for **Nuetel Communic (AS35568)**
From **07/01/10** to **06/27/11** in Country: **Bahrain**

35019 BIX   15412 Flag

Source: *BGP Data*

2Connect continues to route through their UK ASN (51406) and through the BIX, with the BIX continuing to play a major (50%) role.

Transit for **2Connect (AS35313)**
From **07/01/10** to **06/27/11** in Country: **Bahrain**

6453 Tata   35019 BIX
51406 2Connect UK Ltd   3257 Tinet SpA

Source: *BGP Data*

With the increased availability of service from Flag and Saudi Telecom, many BIX customers appear to use the BIX as a relatively small backup transit connection.
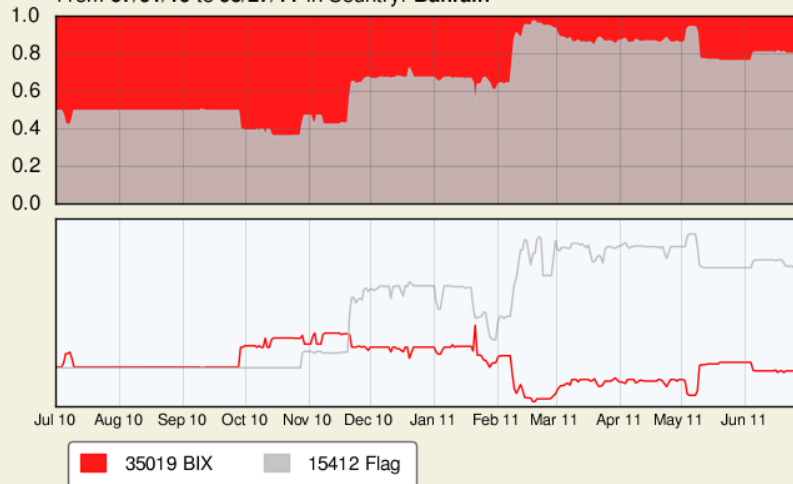
Lightspeed, for example, continues to shift transit back towards Flag in 2011, though it retains a second transit relationship (now back down to just 20%) through the BIX.

Recall that LightSpeed was formerly 100% dependent on Flag for transit.

 As their transit through Flag has grown, LightSpeed has built its base of significant downstream customers in 2011. These now include The Benefit Company and Life Telecommunications (the Kingdom's first active 4-byte autonomous system number) in addition to iCOL Plus and Orange Business.

Transit for **LightSpeed Comm (AS39273)**
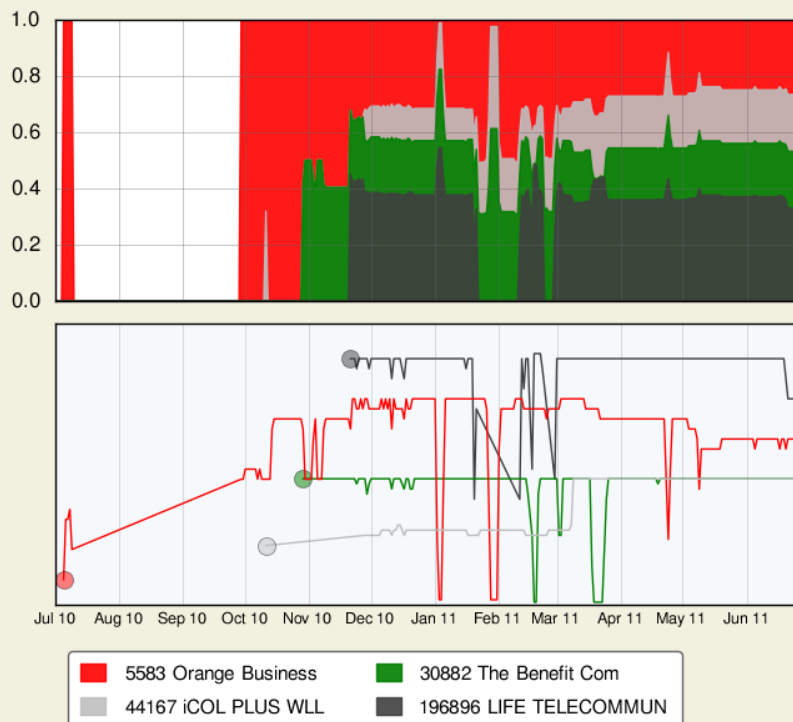From **07/01/10** to **06/27/11** in Country: **Bahrain**

35019 BIX   15412 Flag

Source: *BGP Data*

• **renesys**

Customers of **LightSpeed Comm (AS39273)**
From **07/01/10** to **06/26/11** in Country: **Bahrain**

5583 Orange Business   30882 The Benefit Com
44167 iCOL PLUS WLL   196896 LIFE TELECOMMUN

Source: *BGP Data*   • **renesys**

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iCOL Plus dropped its BIX transit in stages, between December 2010 and March 2011, and is now single-homed behind Lightspeed.
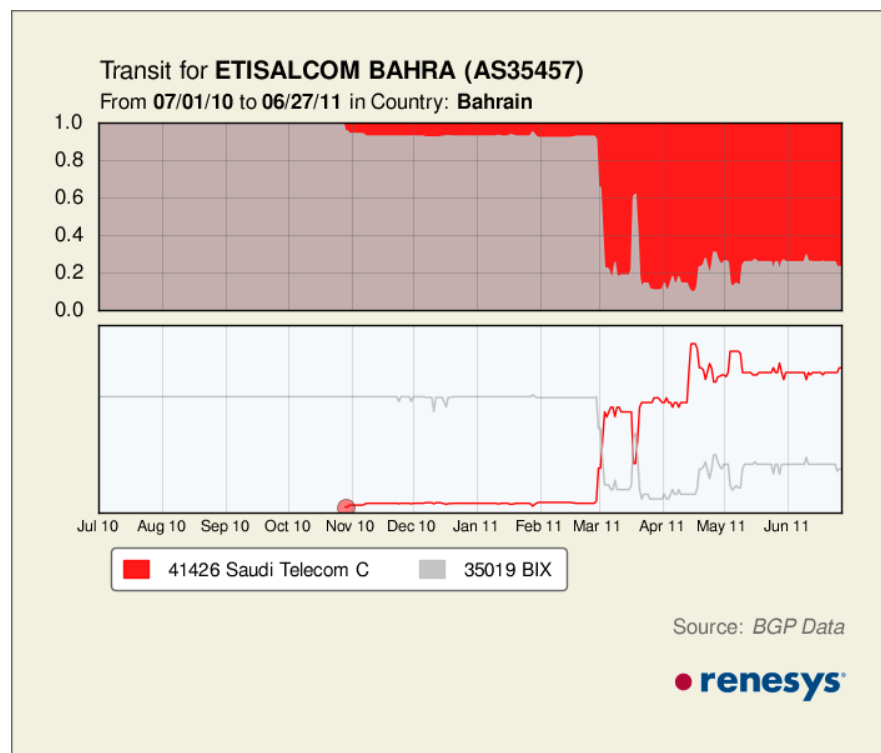
Buying transit from LightSpeed allows iCol to take advantage of Flag transit indirectly, while retaining backup Tata/Etisalat paths through the BIX.


Transit for **iCOL PLUS WLL (AS44167)**
From **07/01/10** to **06/27/11** in Country: **Bahrain**

39273 LightSpeed Comm   35019 BIX

Source: *BGP Data*

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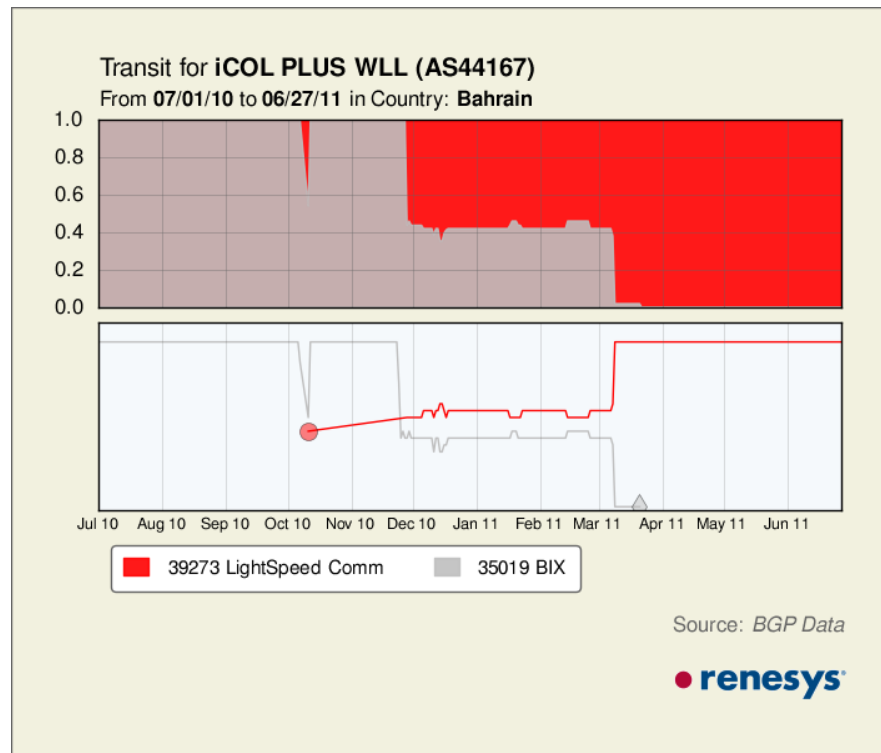
Other providers appear to be replacing BIX transit with Saudi Telecom.

Etisalcom Bahrain, for example, first brought a small amount of STC transit online in November 2010.

In March 2011 they switched to a blended strategy with 80% reliance on STC, relegating the BIX to backup status.

Transit for **ETISALCOM BAHRA (AS35457)**
From **07/01/10** to **06/27/11** in Country: **Bahrain**

41426 Saudi Telecom C   35019 BIX

Source: *BGP Data*

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A similar story is visible at Kalaam Telecom, which actually eliminated its single-homed dependence on the BIX in October in favor of a new single-homed dependence on Saudi Telecom.   This new arrangement has been stable throughout 2011.
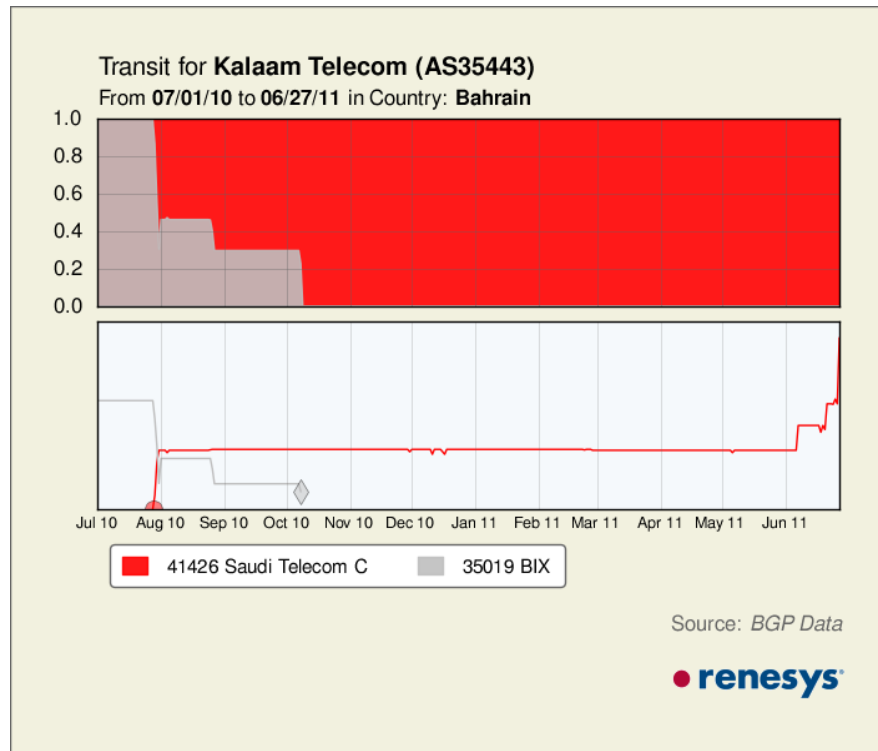
Mena Broadband, which dropped BIX transit back in August 2010, continued to adjust its transit blend.

Mena also dropped Tata in March 2011, having replaced it with a blend of Flag and Saudi Telecom.
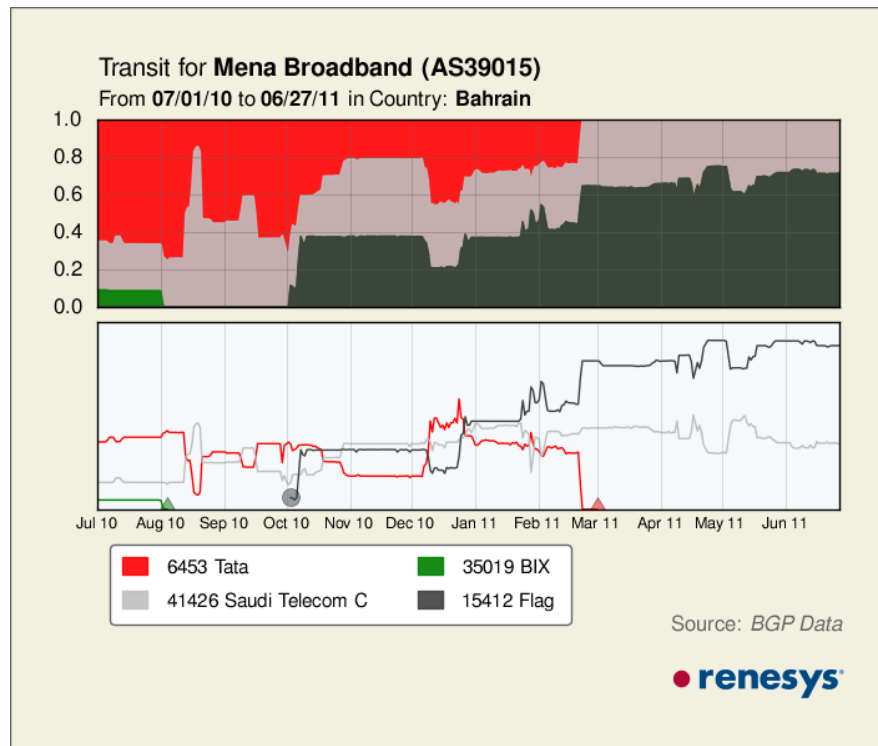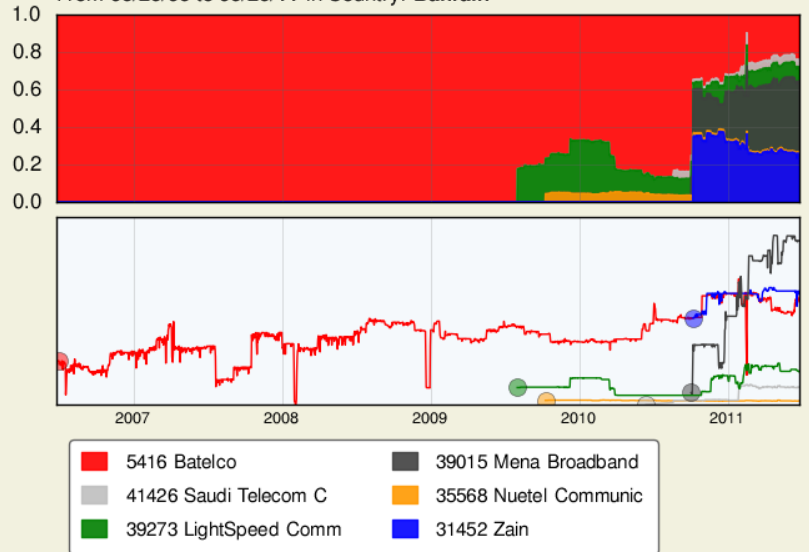
Flag

The main story of 2010 was certainly the increased willingness of Bahrain providers to take advantage of Flag transit.

This five-year plot shows the sudden growth of Bahraini providers' Flag transit over the last two years, after a long period in which Batelco was Flag's only customer. (Note five-year timescale.)


Zooming back into the last 12 months, it's clear that in the last expansion round of non-Batelco Flag transit , which appeared in October 2010, many providers made commitments to shift significant portions of their traffic onto Flag.

Major Bahraini Flag customers such as Batelco, Zain, LightSpeed, and Mena Broadband are maintaining or increasing their utilization of Flag in 2011.

There haven't been any visible new customer wins for Flag in Bahrain since the end of 2010, however, and for now, the new contract momentum clearly belongs to Saudi Telecom.

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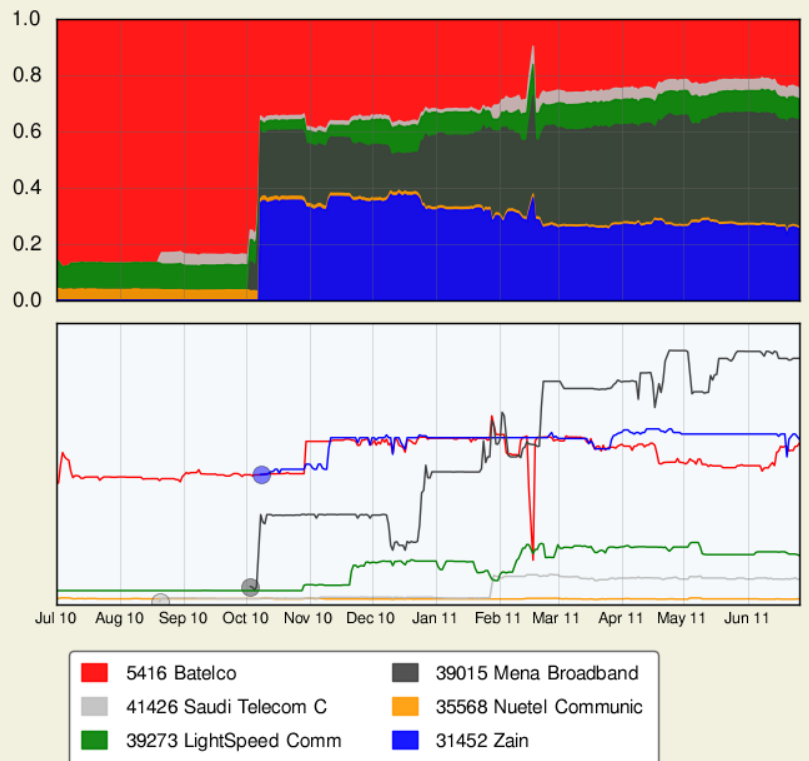
Saudi Telecom

Saudi Telecom's total Bahrain transit has continued to grow smoothly throughout the last 12 months, representing a mixture of Viva's 3G mobile traffic, and direct provision of IP transit to downstream providers.
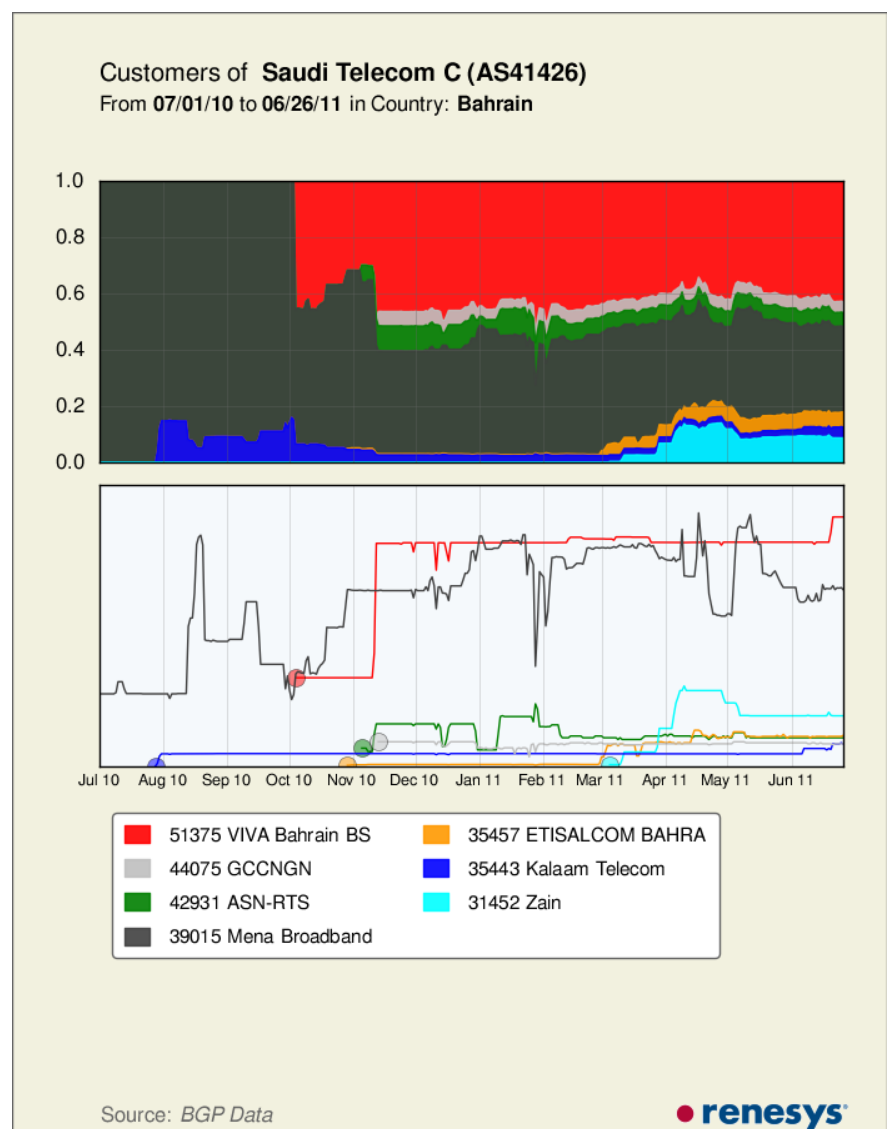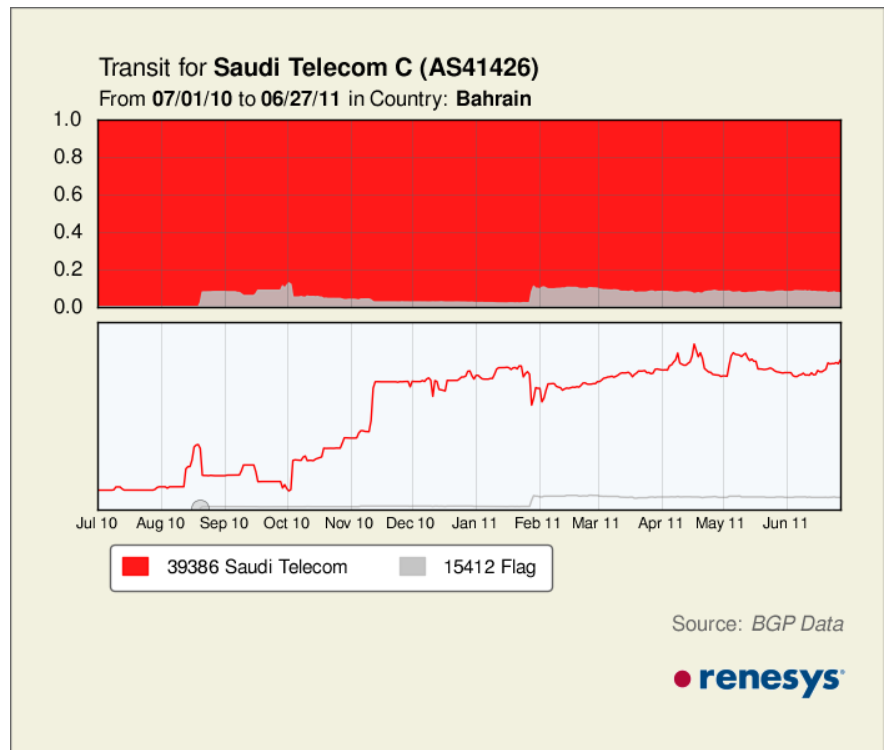
A small amount of STC's Bahrain traffic (perhaps 5%) is handled through their access to the Flag cable. The vast majority of it is backhauled to Saudi Arabia over the GCCIA cable, where it is transited through STC's main autonomous system, AS39386.

Transit for **Saudi Telecom C (AS41426)**
From **07/01/10** to **06/27/11** in Country: **Bahrain**

Legend: 39386 Saudi Telecom · 15412 Flag

Source: *BGP Data*

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This plot clearly summarizes the success STC has had in bringing new Bahrain customers on-net over the course of the last 12 months.

Mena Broadband was the first customer; Kalaam joined in August 2010.

Viva Bahrain (STC's mobile network) makes a visible appearance in October.

RTS and GCCNGN join in November. Etisalcom Bahrain ramps up in March 2011 after a long experimental period. Zain Bahrain follows shortly thereafter.

Customers of **Saudi Telecom C (AS41426)**
From **07/01/10** to **06/26/11** in Country: **Bahrain**

Legend:
51375 VIVA Bahrain BS · 35457 ETISALCOM BAHRA
44075 GCCNGN · 35443 Kalaam Telecom
42931 ASN-RTS · 31452 Zain
39015 Mena Broadband
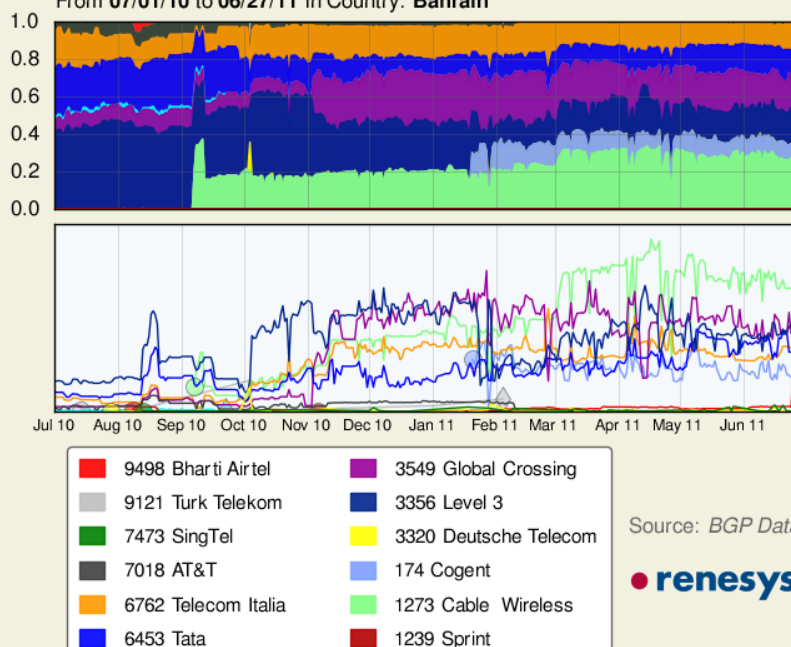
Source: *BGP Data*

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The upstream, Saudi Telecom 39386, takes advantage of very diverse international transit to carry traffic to and from Bahrain.

Cogent has appeared as a provider in Saudi Arabia in the last 12 months, selling to Etihad Atheeb as well as STC.

The arrival of Cogent in a national market traditionally signals lower prices ahead; we'll see whether this is true in Saudi Arabia, and whether the benefits trickle down to Bahrain.

Transit for **Saudi Telecom (AS39386)**
From **07/01/10** to **06/27/11** in Country: **Bahrain**

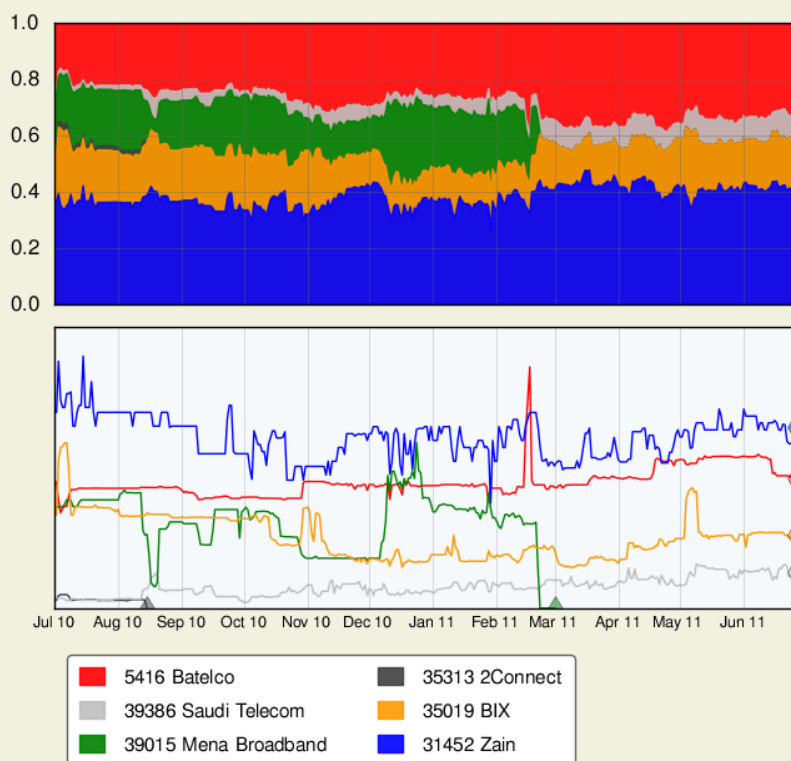|			
9498 Bharti Airtel		3549 Global Crossing	
9121 Turk Telekom		3356 Level 3	
7473 SingTel		3320 Deutsche Telecom	
7018 AT&T		174 Cogent	
6762 Telecom Italia		1273 Cable Wireless	
6453 Tata		1239 Sprint	

Source: BGP Data

Tata

Even in the face of new competition from Flag and STC for Bahrain transit, Tata's share has been fairly constant in the last 12 months.   Aside from the loss of Mena Broadband, the three major remaining customers (Batelco, Zain Bahrain, and the BIX) seem to be holding fast.

When the new Tata cable comes ashore in late 2011, it seems reasonable to predict that both Tata and the BIX will pick up some additional share of the Bahrain routing table. The impact of the GBI cable will be harder to predict.

Customers of **Tata (AS6453)**
From **07/01/10** to **06/27/11** in Country: **Bahrain**

5416 Batelco		35313 2Connect	
39386 Saudi Telecom		35019 BIX	
39015 Mena Broadband		31452 Zain	

Source: BGP Data

Batelco

Batelco retains its rough 50-50 mixture of Tata and Flag transit, without significant modifications over the preceding 12 months.

It continues to be the case that Batelco has no downstream customers with their own autonomous system, able to "multihome" to competing providers.

Transit for **Batelco (AS5416)**
From **07/01/10** to **06/27/11** in Country: **Bahrain**

6453 Tata   15412 Flag

Source: *BGP Data*

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