THE JOURNEY OF A VENDOR NEUTRAL DATA CENTRE

Michele McCann, Teraco Data Environments
For AfPIF 2018
2008: WHY THE TIME WAS RIGHT

By 2008 the teleco market in South Africa had reached a pivotal point, resulting in the optimal environment for the establishment of a vendor neutral data centre operator:

BEFORE 2008

• Single fixed line operator
• Single operator licensed to build infrastructure
• High connectivity costs - $4000 per Mbps
• Large Telco’s not peering
• Limited subsea capacity (2 cables: SAT3 & SAFE)
• Limited international content available locally

TODAY

• Over 350 registered ASNs
• ECNS license holders build out own infrastructure
• 2 established IXP operators
• Multiple high capacity subsea cables (EASSy, WACS, SEACOM, SAT3 & SAFE)
• 6/10 top content providers available locally
• 6/10 top CDNs available locally
TERACO INVESTMENT TIMELINE

**SERIES A**
The Series A round of fundraising closed in July 2008 with R47,5m
Funds used to build & fit-out Cape Town DC1 – 500sqm, 1MVA power

**SERIES B**
Series B closed in July 2009 with R50m raised
Funds for purchase of land & construction of Isando, JB1 (Phase 1) – 1300sqm, 2MVA

**SERIES C**
Closed June 2011 with total of R158m
Capital was used to expand JB1 (Phase 2 & 3) as well as build Durban DB1 – 700sqm, 1,6MVA

**R1,2B DEBT FUNDING**
Debt facility is increased spurred by strong growth
Funds used to build and fit-out JB1 West – 4800sqm, 14MVA and JB2 Bredell – 5000sqm, 24MVA

**R400M**
An initial debt facility of R400m is established
Funds used for further fit-outs in CT1 – 1100sqm, 2MVA, JB1 – 3000sqm, 4,5MVA

**R1,8B GROWTH FUND**
A further increase in the debt fund to R1,8b
Teraco announces the next build JB3 Isando Campus (Phase 1) – 5000sqm, 16MVA
GROWTH TIMELINES

WHITE SPACE (SQM)

NUMBER OF CLIENTS

AVAILABLE POWER (MVA)

INTERCONNECTS
THE MARKET VERTICALS
ECOSYSTEMS

NETWORKS
CLOUD
CONTENT
FINANCIAL
ENTERPRISE
TRENDS DRIVING DC GROWTH IN AFRICA

• Content is moving closer to the edge (user)
• Accelerated migration to the Cloud
  • Infrastructure capex
  • Lack of resources (skills)
  • On premise DC cost escalation
  • Access to connectivity
  • Lower connectivity (capacity) costs
• The Cloud is local
  • Improved security
  • Data sovereignty
  • Lower latencies
  • Emerging market
• Access to multiple networks
• Access to peering (NAPAfrica, JINX, etc.)
• Enterprise is becoming digital
  • eCommerce
  • Online everything
  • On premise DC cost escalation
  • Access to connectivity
  • Lower connectivity (capacity) costs
2018: THE ADVENT OF PUBLIC CLOUD INFRASTRUCTURE

WHY ARE THEY HERE?

<table>
<thead>
<tr>
<th>RANK</th>
<th>COMPANY</th>
<th>INDUSTRY</th>
<th>COUNTRY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sonatrach</td>
<td>Petroleum</td>
<td>Algeria</td>
</tr>
<tr>
<td>2</td>
<td>Sonangol</td>
<td>Petroleum</td>
<td>Angola</td>
</tr>
<tr>
<td>3</td>
<td>The Bidvest Group</td>
<td>Diversified</td>
<td>South Africa</td>
</tr>
<tr>
<td>4</td>
<td>Sasol</td>
<td>Chemicals</td>
<td>South Africa</td>
</tr>
<tr>
<td>5</td>
<td>Eskom</td>
<td>Utilities</td>
<td>South Africa</td>
</tr>
<tr>
<td>6</td>
<td>MTN Group</td>
<td>ICT/Telecoms</td>
<td>South Africa</td>
</tr>
<tr>
<td>7</td>
<td>Steinhoff International Holdings</td>
<td>Wood and paper</td>
<td>South Africa</td>
</tr>
<tr>
<td>8</td>
<td>ShopRite</td>
<td>Holdings Retail</td>
<td>South Africa</td>
</tr>
<tr>
<td>9</td>
<td>BidCorp (ex Bidvest Foods)</td>
<td>Agribusiness</td>
<td>South Africa</td>
</tr>
<tr>
<td>10</td>
<td>Imperial Holdings</td>
<td>Diversified</td>
<td>South Africa</td>
</tr>
</tbody>
</table>

TOP 25 AFRICAN RETAILERS, FY13

<table>
<thead>
<tr>
<th>RETAIL REVENUE RANK</th>
<th>NAME OF COMPANY</th>
<th>HEADQUARTER COUNTRY</th>
<th>CORE RETAIL SEGMENT 2013</th>
<th>REVENUE (US$ MILLION)</th>
<th>REVENUE GROWTH (Y-O-Y)</th>
<th>FY11-FY13 REVENUE CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shoprite Holdings Ltd</td>
<td>South Africa</td>
<td>Food and beverage</td>
<td>9 852,50</td>
<td>10,5%</td>
<td>11,1%</td>
</tr>
<tr>
<td>2</td>
<td>Massmart Holdings Ltd</td>
<td>South Africa</td>
<td>General merchandise</td>
<td>7 529,90</td>
<td>9,8%</td>
<td>8,7%</td>
</tr>
<tr>
<td>3</td>
<td>Pick n Pay Stores Ltd</td>
<td>South Africa</td>
<td>Food and beverage</td>
<td>6 342,30</td>
<td>65,0%</td>
<td>6,8%</td>
</tr>
<tr>
<td>4</td>
<td>The SPAR Group Ltd</td>
<td>South Africa</td>
<td>Food and beverage</td>
<td>5 166,70</td>
<td>10,7%</td>
<td>11,5%</td>
</tr>
<tr>
<td>5</td>
<td>Woolworths Holdings Ltd</td>
<td>South Africa</td>
<td>Clothing and accessories</td>
<td>3 827,80</td>
<td>12,7%</td>
<td>17,8%</td>
</tr>
<tr>
<td>6</td>
<td>The Foschini Group Ltd</td>
<td>South Africa</td>
<td>Clothing and accessories</td>
<td>1 594,10</td>
<td>13,6%</td>
<td>11,7%</td>
</tr>
<tr>
<td>7</td>
<td>Mr Price Group Ltd</td>
<td>South Africa</td>
<td>Clothing and accessories</td>
<td>1 557,70</td>
<td>15,0%</td>
<td>14,1%</td>
</tr>
<tr>
<td>8</td>
<td>Clicks Group Ltd</td>
<td>South Africa</td>
<td>Health and personal care</td>
<td>1 349,70</td>
<td>7,9%</td>
<td>6,7%</td>
</tr>
<tr>
<td>9</td>
<td>JD Group Ltd (Steinhoff International Holdings Limited)</td>
<td>South Africa</td>
<td>Furniture and home furnishings</td>
<td>1 141,30</td>
<td>-5,8%</td>
<td>2,5%</td>
</tr>
<tr>
<td>10</td>
<td>Truworths International Ltd</td>
<td>South Africa</td>
<td>Clothing and accessories</td>
<td>1 008,20</td>
<td>7,1%</td>
<td>8,8%</td>
</tr>
</tbody>
</table>
WHY SOUTH AFRICA

1. Large Addressable Market
2. Internet Freedom
3. Broadband Penetration
4. Stable Power Infrastructure
5. Favourable Regulatory Environment
6. Stable Political Climate
7. Stable Economic Climate
8. Geographic Location (Furthest Point South from European Hub)

JHB – CPT = 16ms
JHB – London = 155ms
JHB – Nairobi = 52ms
JHB – Lagos = 168ms
London – Nairobi = 135ms
London – Lagos = 94ms
CPT – London = 128ms
CPT – Nairobi = 72ms
CPT – Lagos = 151ms
COMBINED LATENCY SENSITIVE REGIONAL SPLITS

WESTERN CAPE
Population: 5.8mil
Employment: 15%
Contrib. GDP: 14%

EASTERN CAPE
Population: 6.9mil
Employment: 9%
Contrib. GDP: 8%

NORTHERN CAPE
Population: 1.2mil
Employment: 2%
Contrib. GDP: 2%

COMBINED REGION
Population: 13.9mil
Employment: 26%
Contrib. GDP: 24%

GAUTENG
Population: 12.2mil
Employment: 32%
Contrib. GDP: 34%

FREE STATE
Population: 2.8mil
Employment: 5%
Contrib. GDP: 5%

KWA-ZULU NATAL
Population: 10.9mil
Employment: 20%
Contrib. GDP: 16%

LIMPOPO
Population: 5.7mil
Employment: 4%
Contrib. GDP: 7%

MPUMALANGA
Population: 4.3mil
Employment: 6%
Contrib. GDP: 7%

NORTH WEST
Population: 3.7mil
Employment: 7%
Contrib. GDP: 7%

COMBINED REGION
Population: 39.6mil
Employment: 74%
Contrib. GDP: 76%
CONTRIBUTION TO ECONOMIC SECTORS

Breakdown of the South African economy by province, 2015

Source: Gross domestic product (GDP), 4th quarter 2014
## WORLD’S 300 LARGEST METRO AREAS BY GDP (US$)

<table>
<thead>
<tr>
<th>METRO</th>
<th>RANKING IN TOP 300</th>
<th>EST. GDP (US$ BILLION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannesburg</td>
<td>148</td>
<td>82.9</td>
</tr>
<tr>
<td>East Rand (Ekurhuleni)</td>
<td>180</td>
<td>55.3</td>
</tr>
<tr>
<td>Pretoria (Tshwane)</td>
<td>190</td>
<td>49.9</td>
</tr>
<tr>
<td>Gauteng City Region</td>
<td>62</td>
<td>188.1</td>
</tr>
<tr>
<td>Durban Metro</td>
<td>192</td>
<td>48.9</td>
</tr>
<tr>
<td>(proximity to Gauteng)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cape Town Metro</td>
<td>177</td>
<td>58.9</td>
</tr>
</tbody>
</table>

Ref: Project by Brookings & JPMorgan Chase
## Key Indicators for Gauteng

Table: Key indicators for the Gauteng City-Region and global peer metro areas

<table>
<thead>
<tr>
<th>RANK</th>
<th>POPULATION</th>
<th>NOMINAL GDP</th>
<th>EMPLOYMENT</th>
<th>GDP PER CAPITA</th>
<th>GDP PER WORKER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mexico City</td>
<td>Mexico City</td>
<td>Mexico City</td>
<td>Warsaw</td>
<td>Warsaw</td>
</tr>
<tr>
<td>2</td>
<td>Istanbul</td>
<td>Istanbul</td>
<td>Shenzhen</td>
<td>Shenzhen</td>
<td>Istanbul</td>
</tr>
<tr>
<td>3</td>
<td>Gauteng City-Region</td>
<td>Shenzhen</td>
<td>Rio de Janeiro</td>
<td>Istanbul</td>
<td>Santiago</td>
</tr>
<tr>
<td>4</td>
<td>Rio de Janeiro</td>
<td>Rio de Janeiro</td>
<td>Istanbul</td>
<td>Santiago</td>
<td>Shenzhen</td>
</tr>
<tr>
<td>5</td>
<td>Shenzhen</td>
<td>Gauteng City-Region</td>
<td>Gauteng City-Region</td>
<td>Mexico City</td>
<td>Mexico City</td>
</tr>
<tr>
<td>6</td>
<td>Santiago</td>
<td>Santiago</td>
<td>Santiago</td>
<td>Rio de Janeiro</td>
<td>Rio de Janeiro</td>
</tr>
<tr>
<td>7</td>
<td>Cape Town</td>
<td>Warsaw</td>
<td>Warsaw</td>
<td>Gauteng City-Region</td>
<td>Gauteng City-Region</td>
</tr>
<tr>
<td>8</td>
<td>Warsaw</td>
<td>Cape Town</td>
<td>Cape Town</td>
<td>Cape Town</td>
<td>Cape Town</td>
</tr>
</tbody>
</table>

Source: Brookings analysis of Oxford Economics data.
### GLOBAL 2000 CORPORATE HQ LOCATION

Table: Global 2000 corporate headquarters; 2012

<table>
<thead>
<tr>
<th>CITY</th>
<th>COUNTRY</th>
<th>NUMBER OF HQ</th>
<th>REVENUE (USD BILLION)</th>
<th>PROFITS (USD BILLION)</th>
<th>ASSETS (USD BILLION)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johannesburg</td>
<td>South Africa</td>
<td>14</td>
<td>116</td>
<td>18</td>
<td>410</td>
</tr>
<tr>
<td>Shenzhen</td>
<td>China</td>
<td>12</td>
<td>129</td>
<td>14</td>
<td>1,051</td>
</tr>
<tr>
<td>Mexico City</td>
<td>Mexico</td>
<td>12</td>
<td>106</td>
<td>15</td>
<td>168</td>
</tr>
<tr>
<td>Santiago</td>
<td>Chile</td>
<td>9</td>
<td>66</td>
<td>5</td>
<td>153</td>
</tr>
<tr>
<td>Istanbul</td>
<td>Turkey</td>
<td>7</td>
<td>89</td>
<td>8</td>
<td>411</td>
</tr>
<tr>
<td>Rio de Janeiro</td>
<td>Brazil</td>
<td>7</td>
<td>246</td>
<td>43</td>
<td>598</td>
</tr>
<tr>
<td>Cape Town</td>
<td>South Africa</td>
<td>6</td>
<td>32</td>
<td>4</td>
<td>114</td>
</tr>
<tr>
<td>Warsaw</td>
<td>Poland</td>
<td>4</td>
<td>27</td>
<td>4</td>
<td>99</td>
</tr>
<tr>
<td>Tshwane</td>
<td>South Africa</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Brookings analysis of GaWC data.
REGIONAL INTERCONNECT GROWTH

The chart shows the growth of regional interconnects from January 2015 to July 2017. The regions CT1, DB1, and JB1 are indicated with different lines. CT1 and DB1 show a steady growth, while JB1 has more fluctuation with a general upward trend. The highest growth is observed in the JB1 region, particularly from April 2015 onwards.
THE NEXT 10 YEARS IN AFRICA

1. Vendor neutral DCs will proliferate across the major tech hubs (SA, Nigeria, Kenya)

2. Global tech brands will adopt a local approach to these markets

3. 5G accelerates connecting the continent

4. Africa’s informal economy becomes digital

5. Cloud becomes mainstream

6. Corporate/enterprise investment in African technology increases
https://www.youtube.com/watch?time_continue=6&v=PdcvDbYyazQ
THANK YOU

The world connects here.

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