SBCs from Sangoma – Flexibility, Ease of Use and an Unmatched ROI

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Inside this Deck

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• SBC Market
• SBC Intro
• Sangoma SBC Portfolio
• Sangoma SBC Feature Review
• Sangoma SBC Advantages
• Summary
About Sangoma

• Industry pioneer with over 25 years of experience in communications hardware and software

• Publicly traded company since 2000
  – TSXV: STC

• One of the most financially healthy companies in our industry
  – Growing, Profitable, Cash on the Balance Sheet, No Debt

• Mid-market sized firm with just under 100 staff in all global territories
  – Offices in Canada (Toronto), US (NJ), EU (UK & Holland), APAC (India), CALA (Miami)

• World Wide Customer base
  – Selling direct to Carriers and OEMs
  – Selling to the Enterprise through a network of distribution partners
Broad Line of Great Products

• **Voice Telephony Boards**
  - Analog/digital/hybrid, WAN, ADSL, etc

• **Software Applications**
  - NetBorder Express, Call Progress Analyzer…

• **Gateways**
  - NetBorder SIP to TDM
  - SS7 to SIP

• **Wireless Products**

• **Session Border Controllers**

• **Microsoft Lync**

• **Cloud based monitoring**

• **Fiber connectivity (STM1)**

• **Transcoding (boards/appliances)**
Vibrant Ecosystem of Clients & Partners

Open Source Telephony
Ready to use drivers for Sangoma boards

- Asterisk
- FreeSWITCH
- caliweaver
- elastix
- yate
- trixbx
- The Open Platform for Business Telephony

Proprietary PBX and IVR
Plug-in to major soft-PBX and IVRs

- Microsoft Lync
- Barracuda Networks
- Fonality
- AASTRA
- INTECH
- Nucleum
- 3CX

Contact Center
OEM Integration with major software suites

- ORACLE
- inConcert
- GENESYS
- Orecx
- IRISS
- Alteor
- e-contact
- TELUS
- NOKIA
- MTT
- Siemens
- Ericsson
- BT
- Verizon
- Cisco

Carriers, Cloud, Data Ntwks
Proven Infrastructure Technology
SIP TRUNKING & SBC MARKET
SBC Market

- Infonetics:
  - Enterprise SBC market set to grow an average of 49% annually through 2013
  - The market for E-SBC jumped 60 percent in 2011
  - Forecasts E-SBC will reach $527 million globally in 2016

- Driven by:
  - Uptake of SIP trunking
  - Security risks with SIP
  - SIP interop
SBC Market: SIP Trunking

• SIP Trunking is driving E-SBC uptake
  – Replace physical PSTN trunk with IP based connection
  – Improved ROI
  – Share with data
  – More flexibility
SBC Market: SIP Interop Challenges

• SIP (RFC3261) and Interoperability challenges
  – Largest RFC
  – Not a ‘super tight’ spec:
    • Should: 344 times
    • Can: 475 times
    • May 381 times
    • Option: 144 times
  – Lots of room for interpretation
  – SIP Endpoints end up with slight differences that make it hard to interconnect
• End point could use different codecs
SBC Market: VoIP Brings More Risk

- VoIP often carried across public networks
- Calls can be placed and terminated on many devices – IP-Phones, smart phones, desktops, etc.
- Threat level more like that of any internet device – Would you access the internet without a firewall?
SESSION BORDER CONTROLLERS

INTRODUCTION
Integration at the Edge

• Implementing innovative, cost-effective technologies at the edge of the network

• Manage Uncertainty
  – Minimize Capital Investment
  – Leverage Existing Infrastructure
  – Mitigate Service Disruption

• Still Deliver Advanced Services by connecting disparate networks
SBC Is The Front Door To Networks

• SBC controls entry (or not) to a network
• Directs communication between end devices
  – This communication is called a session
• SBC can do this because it sits at the border between two networks

Session  Communication between two SIP devices
Border  SBCs work at the border of networks
Controller  SBCs control the sessions
Sessions

• Signalling: Sets call path up, negotiates codec to be used
• Media: Transports the voice or video
• Media Control: Collect information on voice quality
SIP Sessions

- All three elements of a session are direct between endpoints

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**SBC is a B2BUA**

- SBC is a Back-to-Back User Agent
  - B2BUAs terminate sessions and re-initiates a new session on the other side
  - SBC is in the path for all calls
  - SBC controls all the elements of the session
Firewall is not enough

• Traditional firewalls cannot
  – Prevent SIP-specific overload / SIP DoS
  – Open/Close RTP media ports in sync with SIP signaling
  – Track session state and provide uninterrupted service
  – Perform internetworking or security on encrypted sessions
  – Solve multi-vendor SIP interoperability
  – Topology Hiding

• SBCs do all of the above.
# SBC vs Other Approaches

<table>
<thead>
<tr>
<th>Function / Feature</th>
<th>Sangoma SBC</th>
<th>Firewall with SIP ALG</th>
<th>IP-PBX + Session Manager</th>
<th>Router</th>
</tr>
</thead>
<tbody>
<tr>
<td>DoS/DDoS Protection</td>
<td>✔</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Access Control Dynamic Static</td>
<td>✔</td>
<td>Static only</td>
<td>-</td>
<td>Static only</td>
</tr>
<tr>
<td>Topology Hiding</td>
<td>✔</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Encryption Media and Signaling</td>
<td>✔</td>
<td>IPSec Only</td>
<td>TLS Only</td>
<td>-</td>
</tr>
<tr>
<td>Remote NAT Traversal</td>
<td>✔</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>VPN Bridging</td>
<td>✔</td>
<td>-</td>
<td>-</td>
<td>L3 Only</td>
</tr>
<tr>
<td>Header Manipulation Rules</td>
<td>✔</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Advanced session admission controls</td>
<td>✔</td>
<td>-</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Load balancing and Advanced Routing</td>
<td>✔</td>
<td>-</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Signaling overload control</td>
<td>✔</td>
<td>-</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>QOS marking and reporting</td>
<td>✔</td>
<td>-</td>
<td>-</td>
<td>Minimal</td>
</tr>
</tbody>
</table>
Product Positioning

The most cost-effective, easiest to provision, and easiest to manage line of SBCs on the market
PRODUCT HIGHLIGHTS
Product Highlights

• Scalability from 25-4000 Sessions/Calls
• Four Models to meet specific deployment needs
  – Available Virtual Machine Model
• A Single GUI/Provisioning Tool for all Models
  – Traffic Visualization Tools for easy analysis
• Simple Licensing Model
  – No Hidden Fees
PORTFOLIO OF SBCS

Vega and NetBorder Series
Session Border Controllers

- Vega Enterprise SBC
  - 25-250 Sessions/Calls
- Vega VM Enterprise SBC
  - 25-500 Sessions/Calls
  - Software Only/Virtual Machine Ready
- Vega VM/Hybrid Enterprise SBC
  - SANGOMA EXCLUSIVE
  - 25-500 Sessions/Calls
  - SBC Maintained in VM
  - Media Functions offloaded to external hardware resource
- NetBorder Carrier SBC
  - 250-4000 Sessions/Calls
Product Highlights – All SBCs

- Web GUI for ease of Configuration and Deployment
- Efficient Scaling from 25 to 4000 Sessions/Calls
  - 1 session per voice call
  - SIP registrations do not consume sessions
- Session-based licensing, no hidden costs or fees
- Cost-Effective Carrier-Class Features and Performance
- Network Interconnect Point for SIP Trunking

- QOS & QOE (Quality of Experience) for Enterprise Networks
- Encryption and Security
- Topology Hiding for Fraud Protection
- DoS/DDoS Attack Protection
- Advanced Routing
- Hosted NAT traversal
- Voice, Video, Fax, IM and Presence Support
- SIP-SIP Interworking & protocol normalization
Vega Enterprise SBC

• Enterprise Inter-Site Networking and SIP Trunking Border Control
• Enables Local Security Management for SMBs and Small Enterprises
• Supports 25 to 250 Simultaneous Sessions
  – Field Upgradeable Session Expansion
• Hardware Based Transcoding and Media Handling
• Web GUI Configuration and Smart Defaults for Simple Deployment
• 1U Rackmount appliance
Vega VM Enterprise SBC

- Supports 25 – 500 Sessions/Calls
- Virtual Machine-Ready Software
- Web GUI Configuration Tool and Smart Defaults
- Software-Based Transcoding and Media Handling
  - Transcoding Will Impact Session Capacity

- All Other Features Comparable to Vega eSBC Appliance
Vega VM/Hybrid Enterprise SBC

• Supports 25-500 Sessions
• VM/Hybrid Functions
  Exclusive to Sangoma
  – Maintains SBC In Software/VM
  – Media Functions are offloaded to an external Hardware Resource
  – Multiple external hardware resources cost-effectively enables up to 500 sessions
NetBorder Carrier SBC

• Supports 250 – 4000 Sessions/Calls
• Linear Cost Model for Session Expansion
  – Only pay for what it needed
  – Enables Flexible Pricing Models
• Web GUI Configuration and Smart Defaults for Simple Deployment

• 1U Rackmount Appliance
• Redundant Power Supply Options - AC & DC
• RAID 1 Solid State Drive
## VoIP Features

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>1U Enterprise</th>
<th>1U Carrier</th>
<th>VM Hybrid</th>
<th>VM / ISO</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIP Trunking &amp; Remote Worker</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Voice, Video, Fax, IM and Presence Support</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SIP-SIP Interworking &amp; protocol normalisation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hosted NAT traversal</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
## Session and Monitoring Features

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>1U Enterprise</th>
<th>1U Carrier</th>
<th>VM Hybrid</th>
<th>VM / ISO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session Routing (multiple options)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Session agent group load balancing options</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MPLS LSP traffic classification (via 802.1q VLAN traffic mapping)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Accounting CDR records</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>QoS monitoring and reporting (media)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
## Security Features

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>1U Enterprise</th>
<th>1U Carrier</th>
<th>VM Hybrid</th>
<th>VM / ISO</th>
</tr>
</thead>
<tbody>
<tr>
<td>TLS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>IPSec Encryption</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SRTP Encryption</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Dos/DDoS</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Topology Hiding (L3-L5)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
# Call Control

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>1U Enterprise</th>
<th>1U Carrier</th>
<th>VM Hybrid</th>
<th>VM / ISO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Admission Control (multiple options)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Rate Limiting (Session and registrations)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Endpoint authentication (multiple options)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Media bandwidth policing</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Intelligent media anchoring/release</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
## Physical Spec

<table>
<thead>
<tr>
<th>Feature / Function</th>
<th>1U Enterprise</th>
<th>1U Carrier</th>
<th>VM Hybrid</th>
<th>VM</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDD</td>
<td>32GB SSD</td>
<td>2 x 32GB SSD RAID</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Power</td>
<td>60W</td>
<td>250W</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Rackmount</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
</tr>
<tr>
<td>Ethernet</td>
<td>2 x GigE</td>
<td>2 x GigE</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Hardware Assisted RTP</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
</tr>
<tr>
<td>Session Capacity</td>
<td>250</td>
<td>4000</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Field Upgradeable</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Hardware ready for upgrade to capacity</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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Full Feature List

- Virtual Machine ready
- Flexible Hardware Platforms
- Easy to use Web Interface
- Advanced XML Routing Engine
- Dynamic Load Balancing and Call Routing
- Hybrid decoupled design (Hardware-Assisted RTP even when running on a virtual machine)
- SIP Intrusion Prevention
- SIP Registration Scan Attack Detection
- SIP Request Rate Limiting
- SIP Friendly Load Limitation
- SIP Registration Pass-thru
- SIP Header Normalization
- SIP Malformed Packet Protection
- Topology Hiding
- Intelligent media anchoring/release
- DDoS / DoS Attack Protection
- RTCP Statistics Reports

- Call Access Control (Limits call rate and total calls per user or IP)
- Call Security with TLS / SRTP
- Advanced NAT Traversal Capabilities
- Least Cost Routing
- Full RTP Transcoding (G.711, G.722, G.729, G.726, G.723.1, iLBC, AMR, G.722.1)
- T.38 Fax Relay
- IP Firewall
- RADIUS CDR and Authentication
- HTTP XML-based CDR
- ENUM Routing
- VLAN
- QoS (ToS or DSCP)
- Multiple flexible form factors
- Scalable from 25 to 4000 sessions (field upgradable)
ADVANTAGES OF THE SANGOMA SESSION BORDER CONTROLLERS
Media Anchoring and Complex Calls

• Proxy based IP-PBXs are not in the media stream and hence:
  – Require Sangoma SBC when connected to a SIP trunk
  – Need an SBC in order to perform complex call functions such as blind transfers and call forking

• PBX Isolation
  – Sangoma SBC is able to isolate the enterprise PBX from the ITSP and provide rich media functions
  – Without the Sangoma SBC acting as the demarcation point between the PBX and ITSP, unwanted SIP messages such as REFER would reach the ITSP
  – In such cases ITSP would simply reject such messages causing call failures
  – In other cases ITSP would have strict rules as to which call flows are supported and allowed

• Example: SIP-X and Esuze
  – Sangoma SBCs fully interoperates with SIP-X based PBXs and facilitates secure demarcation point
  – Sangoma SBCs offer media anchoring support to the PBX.
Advanced XML Routing & Database Support

• Sangoma SBC's have SoftSwitch style call routing support:
  – Users can configure unlimited number of dial plans/routing rules per sip profile
  – All routing plans can be applied live without system interruption
  – The rules can be very simple or very complex
  – Routing rules support complex syntax for advanced logic and customization

• Database Support
  – Complex routing rules, DIDs, and ACL lists are usually stored in internal or external databases
  – Sangoma SBC support external database access via HTTP requests
  – Sangoma SBC support internal database via MySQL for routing plans, ACL lists and etc.
  – On each routing table entry an HTTP request to an internal DB can be used to fetch routing information.

• Per Message Routing and Header Manipulation
  – Routing rules are executed for each SIP message (INVITE, 183, 180, 200 etc...).
  – Actions can be taken based on any SIP message that flows through the SBC.
  – SIP Headers can be modified using routing rule syntax and regular expressions for each SIP message.
Load Balancing and LCR

• Sangoma SBC offers carrier features to the Enterprise:
  – Load Balancing
    • Allows Sangoma SBC to distribute call load to number of ITSP providers.
    • In case of ITSP failure, the call load can be re-routed to other ITSPs.
  – Least Cost Routing tables
    • Takes advantage of favorable rates.
  – Advanced Networking
    • Most large networks require complex networking support.
    • Sangoma SBC supports: VLAN, DiffServ, QOS, Firewall, etc.
Media Server & Transcoding/Codecs

• Sangoma SBCs offer rich media services along with full featured transcoding

  – VQE Features
    • Echo Cancellation, Noise Reduction, AGC, etc...

  – Codecs
    • G.711, G.722, G.729, G.726, G.723.1, iLBC, AMR, G.722.1

  – Fax (FoIP)
    • T.38 Pass-Through
Configurable Load Limit Messages

• When threshold for message load limit is reached:
  – Sangoma SBC will reply with a SIP 503 “Service Unavailable” message which tells the originator to try an alternate destination
  – In other SIP appliances once the CPU threshold reaches a certain point the traffic is disrupted by means of calls dropping, loss of RTP (if media is flowing through), or registrations becoming corrupted.

• Configurable Load Limit Message
  – Sangoma SBC allows one to configure the load limit message
    • SIP message type 501, 403 etc...
  – Allows greater flexibility and customization to custom network needs.
WEB GUI
Browser-Based GUI

• Sangoma SBC uses a browser-base GUI for configuration, operation, troubleshooting and management
• Embedded documentation and contextual help screens further simplify the use of the browser-base GUI
• No need to use complex CLI and text based interfaces
Browser-Based GUI – Control Panel

**Application Services**

<table>
<thead>
<tr>
<th>Service</th>
<th>Status</th>
<th>Uptime</th>
<th>CPU(%)</th>
<th>Memory(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetBorder Session Controller</td>
<td>STARTED</td>
<td>0:01</td>
<td>6.0</td>
<td>0.2</td>
</tr>
</tbody>
</table>

**Security Services**

<table>
<thead>
<tr>
<th>Service</th>
<th>Status</th>
<th>Uptime</th>
<th>CPU(%)</th>
<th>Memory(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Firewall</td>
<td>STOPPED</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Intrusion Detection</td>
<td>STOPPED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrusion Prevention</td>
<td>STOPPED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secure Shell</td>
<td>STARTED</td>
<td>1:08:11:34</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>SIP Security Monitor</td>
<td>STARTED</td>
<td>0:02</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Media Firewall</td>
<td>STARTED</td>
<td>0:01</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Media Services**

<table>
<thead>
<tr>
<th>Service</th>
<th>Status</th>
<th>Uptime</th>
<th>CPU(%)</th>
<th>Memory(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTCP monitor</td>
<td>STARTED</td>
<td>0:03</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
# Browser-Based GUI – Session Status

This page allows viewing the SIP Session Status.

## Session Status (6 total)

<table>
<thead>
<tr>
<th>Direction</th>
<th>Channel Name</th>
<th>Caller Name</th>
<th>Callee Name</th>
<th>Codec</th>
<th>Call State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inbound</td>
<td>sofia/internal/1234@192.168.168.100</td>
<td>Sangoma Technologies</td>
<td>9197</td>
<td>G722</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>Outbound</td>
<td>sofia/internal/9197@192.168.168.100:5080</td>
<td>Sangoma Technologies</td>
<td>9197</td>
<td>PCMU</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>Inbound</td>
<td>sofia/internal/1234@192.168.168.100</td>
<td>Sangoma Technologies</td>
<td>9197</td>
<td>G722</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>Outbound</td>
<td>sofia/internal/9197@192.168.168.100:5080</td>
<td>Sangoma Technologies</td>
<td>9197</td>
<td>PCMU</td>
<td>ACTIVE</td>
</tr>
<tr>
<td>Inbound</td>
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<td>Sangoma Technologies</td>
<td>9197</td>
<td>PCMU</td>
<td>ACTIVE</td>
</tr>
</tbody>
</table>

Refresh
Browser-Based GUI – SIP Profiles

Configuration → Signaling → SIP Profiles

This page allows managing SIP profile settings.

Bind Domains to internal

- nsc-demo.sangoma.local
- my-company.com

Bind  Cancel
Browser-Based GUI - Defining a SIP Profile
VM AND THE VM/HYBRID OPTION
VM - Benefits

• For customers already using VMs, they do not have to add another server to their infrastructure
  – Reduce Points of Failure
  – No Power, Space or Cabling Concerns
• VM Infrastructure provides unmatched flexibility, redundancy and durability
  – VMware ESX infrastructure can run a single VM on multiple HW platforms allowing carrier grade flexibility hardware redundancy
  – VM instance can be moved, copied and backed up
  – VM offers upgrades with minimal down time by allowing IT to build and test new VM before shutting down production systems
VM/Hybrid - Benefits

• SBC is maintained Virtual Machine with all associated benefits
• Offloading Media RTP to a hardware resource reduces load on SBC for maximum scalability
• Future versions will allow sharing of hardware resources for maximum resiliency and efficiency
Simple Licensing

• Simple per session licensing
  – No Per Feature, Per User or Per Codec licensing
• Predictable SBC capacity and cost in every use case
• Easier sales proposition
Sangoma SBC Advantage

- Browser-Based GUI
- VM and the VM/Hybrid Options
- Simple Licensing
Summary

• Sangoma has a wide range of flexible SBCs, saleable from small enterprise to large carrier
• Easy licensing and field upgradeable
• Full feature set
• Cost effective compared to competition
The Sangoma Advantage

What differentiates Sangoma SBCs from the Competition?

• Focus on Ease of Installation and Operation
• Highly Reliable
• 25+ years of industry experience
• Professional support
• Dedicated to Highest Quality Products at Reasonable Price Points
Documentation

- Frequently updated wiki
  - HTML/pdf based documentation

Includes:
- Admin guide
- Step-by-step configuration
- Technical documents
- Quick Start Guide
For More Info

• Guide to Vega Gateways
  http://wiki.sangoma.com/vega

• For future training, visit
  http://sangoma.com/resources/training
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