Supply Chain Resilience
Master supply chain risk by building resilient supply chains

September 2012
Session Agenda

- Session overview and presenter introductions
- KPMG’s perspective on supply chain risk and resilience
- Resilinc – Leading resilience software provider
- Case Study: Palo Alto Networks
- KPMG closing comments
- Q&A
Today’s speakers

Kevin O’Laughlin
Managing Partner
Supply Chain and Operations Advisory Services, KPMG LLP

Bindiya Vakil
President
Resilinc

Yatish Desai
Director
Supply Chain and Operations Advisory Services, KPMG LLP

Vonnie French
Director
Palo Alto Networks
It is important to define a few key terms to establish a common perspective around supply chain risk and resiliency

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Chain Risk</td>
<td>A negative deviation from the expected value in the supply chain</td>
</tr>
<tr>
<td>Supply Chain Disruption</td>
<td>An unintended, anomalous triggering event that significantly threatens normal business operations</td>
</tr>
<tr>
<td>Supply Chain Risk Management</td>
<td>Systematic identification, assessment, and mitigation of potential disruptions to reduce performance risks</td>
</tr>
<tr>
<td>Supply Chain Vulnerability</td>
<td>An exposure to serious disturbance arising from supply chain risks</td>
</tr>
<tr>
<td>Supply Chain Resilience</td>
<td>The ability of the supply chain to recover from a disruption</td>
</tr>
</tbody>
</table>
Organizations today are required to take a comprehensive global perspective in how they manage a range of complex supply chain risks.

### Risk Across the Global Extended Enterprise

#### Supply Base
- Supplier
  - Supplier Relationship Risk
  - Supplier Performance Risk
  - Supplier Financial Risk
  - Supplier Environmental Risk
  - Market/Industry Risk
  - Regulatory Risk
  - Disaster & Recovery Risk
  - Geopolitical Risk
  - Operational Risk

#### Internal Operations
- Organization
  - Operational Risk
  - Management Risk
  - Financial Risk
  - Market/Industry Risk
  - Regulatory Risk
  - Disaster Risk
  - Geopolitical Risk
  - Environmental Risk

#### Customer Base
- Customer
  - Brand Equity Risk
  - Relationship Risk
  - Market/Industry Risk
  - Product/Service Risk
  - Geopolitical Risk
  - Environmental Risk
  - Operational Risk
  - Management Risk
  - Financial Risk

### Risk Multipliers
- Increased globalization
- Sole sourcing
- Emerging markets
- Lean supply chains
- Limited supply chain visibility
- Volatility in capital markets
- Market volatility
- New regulatory requirements
- Short product life cycles
Companies that do not have resilient supply chains are exposed to significant consequences

**Toyota Share Price Drop by 1.2% Following Interruption in Production**

Reuters (2011)  
SC Digest (2012)

**Evonik Plant Fire Disrupts Global Automotive Production**

Commercial Risk Europe (2012)

**2,000 Workers Strike at LG Display Plant Halting Production**

The China Post (2011)

<table>
<thead>
<tr>
<th>Drop in return on sales</th>
<th>Drop in operating income</th>
<th>Drop in return on assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>-114%</td>
<td>-107%</td>
<td>-93%</td>
</tr>
</tbody>
</table>

Source: Hendricks and Singhal, 2005
A critical element of developing a more resilient supply chain is determining the proper level of investment to mitigate risk.
Using KPMG’s Supply Chain Resilience maturity model can help companies begin the process by assessing their existing capabilities and prioritizing areas for development.

- **Level 5 - Optimized**
  Operational risks are managed on a continuous basis across the global extended enterprise and balanced with proactive risk mitigation strategies.

- **Level 4 – Externally Integrated**
  Operational risk is managed across the external enterprise and is incorporated into existing risk management processes, controls, and governance models.

- **Level 3 – Internally Integrated**
  Operational risk management is more formalized and is integrated throughout the organization. Routine operational risk assessments aggregate risk and organization leverage business continuity planning for increasing preparedness.

- **Level 2 - Aware**
  Operational risks are identified, managed, and potential consequences are understood within each context of each organizational function.

- **Level 1 - Reactive**
  Organizations have limited operational risk management standards and focus on ad hoc responses to disruptions.

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KPMG’s four-phased approach to Supply Chain Resilience

1. Assess the Supply Chain Risk Environment
   - Supplier Vulnerability Map

2. Develop Courses of Action (COA)
   - Define Key Risk Mitigation/Resiliency Objectives (Revenue, Cost, Profit, Service)
   - Selection of Viable COAs
   - COA Development
   - COA Modeling

3. Detail Capabilities Design
   - Supply Chain Resiliency Workshop
   - The potential COAs are reviewed with a broad cross functional audience to deepen the understanding of potential mitigation approaches, their costs, and impact and to drive consensus around the preferred portfolio of actions. We use our proprietary U-Collaborate process.

4. Implementation & Monitoring
   - Tracking Dashboard
   - Real-Time Monitoring/Alerts

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KPMG’s four-phased approach to Supply Chain Resilience is supported with a complete toolkit.

1. Assess the Supply Chain Risk Environment
2. Develop Courses of Action (COA)
   - 2a. Define Key Risk Mitigation/Resiliency Objectives (Revenue, Cost, Profit, Service)
   - 2b. COA Development
   - 2c. COA Modeling
   - 2d. Selection of Viable COAs
3. Detail Capabilities Design
4. Implementation & Monitoring

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Resilinc – Powering the Resilient Supply Chain

- Map suppliers, parts, and subcontractors across multiple tiers
- Centralized Repository of supplier data
- Calculate risk quantification metrics

- Track global supply chain disruption events and impact across:
  - Multiple tiers
  - Global supplier locations
  - Single sourced parts
  - Multi-tier dependencies

- Respond based on proactive mitigation strategies
- Assess impact and communicate with suppliers
- Secure inventory, alternate sources
- Modify future product designs to consider resiliency
Resilinc - Plan

Protect high impact single sourced parts with long recovery times

Prioritize resources and budget and address critical parts

Prioritize suppliers to focus efforts on

<table>
<thead>
<tr>
<th>Partner</th>
<th># Single Sourced Parts</th>
<th>Risk Score</th>
<th>Revenue Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINE DART ELECTRONICS</td>
<td>8</td>
<td>9</td>
<td>$1,622,912</td>
</tr>
<tr>
<td>LED Solutions</td>
<td>4</td>
<td>7</td>
<td>$1,306,999</td>
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<tr>
<td>OTHER START ELECTRONICS</td>
<td>2</td>
<td>1</td>
<td>$1,244,451</td>
</tr>
<tr>
<td>LABELS R US</td>
<td>8</td>
<td>7</td>
<td>$1,188,865</td>
</tr>
<tr>
<td>BARKER PICKMAN LLC</td>
<td>3</td>
<td>9</td>
<td>$1,014,662</td>
</tr>
<tr>
<td>CRAFT CROSSING AG</td>
<td>2</td>
<td>7</td>
<td>$978,662</td>
</tr>
<tr>
<td>DISPLAY MODULAR SOLUTIONS</td>
<td>2</td>
<td>6</td>
<td>$975,316</td>
</tr>
<tr>
<td>MAGNIFIERS INC</td>
<td>1</td>
<td>8</td>
<td>$942,634</td>
</tr>
<tr>
<td>JACKSON-PATKINS MFG</td>
<td>1</td>
<td>6</td>
<td>$926,480</td>
</tr>
<tr>
<td>ROCKMANN MFG</td>
<td>2</td>
<td>9</td>
<td>$947,480</td>
</tr>
</tbody>
</table>
Real-time notifications from Resilinc enable fast response and impact analysis when disruption events occur.

Virtual war room enables fast response and impact analysis when disruption events occur.
Resilinc – Mitigate

Mitigate proactively by focusing efforts on the critical products or parts

Mitigate disruption events by quickly identifying impacted parts and inventory coverage

<table>
<thead>
<tr>
<th>Product</th>
<th>Product Group</th>
<th>Product Account</th>
<th># of Parts</th>
<th># of Single Sourced Parts</th>
<th>Net Revenue ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPA-08PR2-1</td>
<td>SPA-121</td>
<td>LUXURY-SEA</td>
<td>1</td>
<td>0</td>
<td>152,763</td>
</tr>
<tr>
<td>TA-JAP-101</td>
<td>TA-JANEN</td>
<td>EMERGING-BRICKS</td>
<td>1</td>
<td>0</td>
<td>146,077</td>
</tr>
<tr>
<td>ATH-VI-2001</td>
<td>ATHENA</td>
<td>CONCEPT</td>
<td>1</td>
<td>0</td>
<td>141,000</td>
</tr>
<tr>
<td>DOWN90PRD-1</td>
<td>DOWNTOWN</td>
<td>LUXURY-SEA</td>
<td>1</td>
<td>1</td>
<td>72,115</td>
</tr>
<tr>
<td>FIRE00-00-00</td>
<td>FIREOPTICS</td>
<td>METRO-ALI</td>
<td>1</td>
<td>0</td>
<td>69,231</td>
</tr>
<tr>
<td>FIRE00-00-00</td>
<td>FIREOPTICS</td>
<td>METRO-ALI</td>
<td>1</td>
<td>0</td>
<td>69,231</td>
</tr>
<tr>
<td>BIGB00-00-01</td>
<td>BIGBEAR</td>
<td>DEF-GOV</td>
<td>2</td>
<td>1</td>
<td>18,000</td>
</tr>
<tr>
<td>BIGB00-00-01</td>
<td>BIGBEAR</td>
<td>DEF-GOV</td>
<td>1</td>
<td>0</td>
<td>18,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part</th>
<th>Full Recovery Time</th>
<th>Alt Site Bring up Time</th>
<th>Revenue Impact ($)</th>
<th>Partner</th>
<th>Dual Sites Y/N</th>
<th>Alt Site Qualified</th>
<th>On Hand - 3m Demand</th>
<th>On Hand - 6m Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOM-0-55B859-500-00</td>
<td>36</td>
<td>18</td>
<td>16,615</td>
<td>COOL ELECTRONICS &amp; MFG</td>
<td>Partial</td>
<td>N/A</td>
<td>-1,142</td>
<td>-3,032</td>
</tr>
<tr>
<td>FIRE0009000031</td>
<td>31</td>
<td>18</td>
<td>69,231</td>
<td>MEMORY ELECTRONICS</td>
<td>No</td>
<td>No</td>
<td>-1,142</td>
<td>-3,032</td>
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<tr>
<td>FIRE010000012</td>
<td>31</td>
<td>18</td>
<td>69,231</td>
<td>CHANGCOU TECHNOLOGY</td>
<td>No</td>
<td>No</td>
<td>-1,142</td>
<td>-3,032</td>
</tr>
<tr>
<td>FIRE010000016</td>
<td>31</td>
<td>18</td>
<td>69,231</td>
<td>CHANGCOU TECHNOLOGY</td>
<td>No</td>
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<td>-1,142</td>
<td>-3,032</td>
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<tr>
<td>FIRE010000025</td>
<td>31</td>
<td>18</td>
<td>69,231</td>
<td>MEMORY ELECTRONICS</td>
<td>No</td>
<td>No</td>
<td>-1,142</td>
<td>-3,032</td>
</tr>
</tbody>
</table>
Putting Resilinc into Practice

Set risk policies and thresholds and identify exceptions

Take actions, assign responsibilities, and track progress

Incorporate results into scorecards and incentives

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Set risk policies and thresholds and identify exceptions.

Take actions, assign responsibilities, and track progress.

Incorporate results into scorecards and incentives.

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Palo Alto Networks Case Study Topics

- About Palo Alto Networks
- Our Approach to Resiliency
- Current progress and insights
- Continued focus on Resiliency
## Palo Alto Networks at a Glance

<table>
<thead>
<tr>
<th>Corporate Highlights</th>
<th>Financials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disruptive Network Security Platform</td>
<td>FY2012 revenue: $255.1M (88% YoY increase)</td>
</tr>
<tr>
<td>Safely Enabling Applications</td>
<td>FY2012 free cash flow: $62.8M (229% YoY increase)</td>
</tr>
<tr>
<td>Able to Address All Network Security Needs</td>
<td>Fiscal year begins Aug 1; Announced 9/10/12</td>
</tr>
<tr>
<td>Exceptional Growth and Global Presence</td>
<td></td>
</tr>
<tr>
<td>Experienced Technology and Management Team</td>
<td></td>
</tr>
<tr>
<td>750+ Employees</td>
<td></td>
</tr>
</tbody>
</table>
Collaborate with our Contract Manufacturers and key suppliers

Deploy Resilinc to proactively gain visibility into potential supply chain vulnerabilities

Respond quickly to changing business drivers
Finger on the pulse – Global Dependencies

**NORTH AMERICA**

- Partner Owned
- Tier 2/3 Owned

**NORTH ASIA**

- Partner Owned
- Tier 2/3 Owned

**SOUTH ASIA**

- Partner Owned
- Tier 2/3 Owned

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Business Impact of Sites in Country

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Sites in Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>29</td>
</tr>
<tr>
<td>China</td>
<td>14</td>
</tr>
<tr>
<td>Taiwan</td>
<td>12</td>
</tr>
<tr>
<td>Japan</td>
<td>12</td>
</tr>
<tr>
<td>Thailand</td>
<td>5</td>
</tr>
<tr>
<td>Mexico</td>
<td>7</td>
</tr>
<tr>
<td>Singapore</td>
<td>7</td>
</tr>
<tr>
<td>Malaysia</td>
<td>6</td>
</tr>
<tr>
<td>Korea</td>
<td>4</td>
</tr>
<tr>
<td>Germany</td>
<td>2</td>
</tr>
<tr>
<td>Indonesia</td>
<td>4</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>1</td>
</tr>
<tr>
<td>Philippines</td>
<td>1</td>
</tr>
</tbody>
</table>

Sub-Tier Dependencies identified & quantified

NORTH ASIA

Supplier A’s Manufacturing Footprint

Foundry + Assembly dependency mapping
Proactive Mitigation + Reactive Response

React promptly, take targeted action due to early warning system.
Continued focus on resiliency

People, process, technology, incentives

1. Collaborate on mitigation implementations with our Contract Manufacturers and Suppliers
2. Grow & maintain supply chain mapping scope and monitoring focus
3. Establish scalable processes and train resources to develop a resilient culture
Yatish Desai

Director, Business Effectiveness

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Tel 216-875-8129
ydesai@kpmg.com

Function and Specialization

Advisory Services / Performance & Technology focusing on Operations, Supply Chain, Business Strategy and Transformation, and Engineering

Education, Licenses & Certifications
- MBA, Case Western Reserve University
- MS, Case Western Reserve University
- B Tech, Indian Institute of Technology
- Design for Six Sigma (DFSS) Certified
- Lean Six Sigma Leadership Forum
- Six Sigma Green Belt
- Certified Quality Engineer (ASQ)
- Instructor: Lean Manufacturing, Sales & Operations Planning, and Supply Chain Optimization

Background

Yatish has over 20 years of experience and success working with consumer packaged goods, healthcare, aerospace/aviation and diversified industrial manufacturing and chemical companies improving operational, supply chain, financial, and customer service performance. He has worked with companies in North America, Europe, and Asia serving as a project lead and subject matter professional for large global and complex transformational and turnaround initiatives addressing core process effectiveness and efficiency, process and product cost optimization, supply chain integration, manufacturing, engineering, Lean Six Sigma implementations, procurement, quality assurance, facilities management, business systems integration.

Representative Advisory Experience

- Served as an Interim VP of Supply Chain Planning for a $2B global CPG company managing the development of supply plans that meet/exceed customer service, inventory, resource utilization, and cost objectives while effectively managing production assets and addressed critical supply shortages encompassing $400M in annual revenue in a complex multi-plant supply environment.

- Led overhead, indirect spend and capital expenditure initiatives to identify $50M of savings and develop a 3-year Roadmap to drive synergies from integrating two business units including defining strategy and developing Target Operating Model for execution for a global Fortune 500 Tier 1 automotive company.

- Led strategic pricing optimization efforts to develop pricing, profitability and costing model to analyze and address $100M pricing improvements, establish margin targets and pricing framework and implement governance system for sustainability and compliance for a global CPG company.

- Led and rolled out an enterprise wide service improvement platform for a $2B global transportation services company, implementing Total Preventive Maintenance (TPM) and service improvement program to reduce service parts inventory by 15%, increase service uptime by 20%, and increase overall asset utilization rates.

- Spearheaded and developed Integrated Business Planning strategy and process map to align with the design and implementation of Oracle R12 upgrade system design and implementation for a major global telecom equipment manufacturer across its global business.

- Led enterprise-wide design and implementation of ISO 9001 quality management systems and Lean Six Sigma practices. Drove continuous improvement efforts that addressed employee training, process standardization, risk management and control, SOPs and adoption of performance dashboards yielding 30% increase in productivity and 20% improvement in profitability for chemicals based industrial and consumer product manufacturing global company.

Representative Clients

Johnson & Johnson, Visteon, Caterpillar, GrafTech International, Avery Dennison, National Express, Solo Cup, Sara Lee, Moen (Fortune Brands), AAR Corp, GENBAND, Whirlpool
Kevin O’Laughlin
Managing Partner, Supply Chain and Operations Advisory Services

KPMG LLP
Two Financial Center
60 High Street
Boston, MA 02111

Tel 617-988-1124
Cell 617-633-7775
kolaughlin@kpmg.com

Background
Kevin is a Partner in KPMG Advisory Services and is the US Leader for KPMG’s Supply Chain and Operations Service Line. He directs teams engaged in supply chain strategy, supply chain operations, and technology enabled supply chain transformation programs for clients in consumer, diversified industrials, and life sciences industries.

Kevin has a highly regarded track record in supply chain and operations management consulting spanning more than 25 years. He has led operations strategy, restructuring and transformation programs for many leading FORTUNE 100 companies with complex, global supply chains. He has assisted clients to reduce operating costs, optimize working capital and inventory investment, globalize manufacturing and supply operations all while enhancing the customer experience.

Kevin has held leadership positions with professional organizations including the Council of Supply Chain Management Professionals for which he served on the Executive Committee and Chair of the Professional Development Committee. In addition he served on the Executive Council and as President of the Boston Chapter of The Institute of Management Sciences.

Professional and Industry Experience
- For a leading sports equipment manufacturer, he led a team in developing an operations strategy and implementation program for relocating its US manufacturing operations to Mexico and China. In addition this assignment developed an alternative distribution network for supporting the new manufacturing footprint in both the Americas and Asia. Total cost savings of 18% of COGS were identified.
- For a leading global pharmaceutical manufacturer, Kevin led a program to reconfigure its manufacturing and supply operations globally. This work reduced plant network by nearly 15 plants -- nearly 30% -- yielding cost savings of nearly 15% reduction in COGS. This work resulted in the formation of the client’s Global Manufacturing and Supply organization and served as the platform for the post-merger integration of a subsequent merger.
- For a fast moving consumer goods manufacturer, Kevin led a program to reconfigure the supply chains serving its international markets. The key objectives was to improve inventory turnover from 2 to 6. The program included identifying product rationalization/product line simplification opportunities implementing deferred packaging operations in three key regions, and implementing hub based demand planning and in-market S&OP processes. Inventory turnover increased from 2 to 4.8 in 18 months, representing hundreds of millions of dollars in working capital reduction.

Education, Licenses & Certifications
- MS, Stanford University
- BA, Boston College
Bindiya Vakil

- President and founder, Resilinc

- A recognized thought leader in the area of supply chain risk management. Ms. Vakil has been a practitioner in high-tech supply chain management with companies including Flextronics, Cisco and Broadcom.

- Ms. Vakil has a master’s degree in supply chain management from MIT with a research focus on risk quantification and product resiliency.

- Ms. Vakil’s concept of “Design for Resiliency” is being widely adopted as a best practice in the industry.
• Vonnie French joined Palo Alto Networks in early 2007 and brings with her more than twenty years of management and leadership experience in Manufacturing Operations.

• Managing the supply chain from end-to-end, Vonnie French has achieved significant efficiencies and results with a small team, while the company grows at a rapid pace.

• Her team’s capabilities to support customers, both domestically and internationally, are second to none.

• Before joining Palo Alto Networks, Vonnie was at Juniper Networks through the Peribit acquisition where she managed the security products supply chain and off-shore manufacturing. Prior to Peribit, Vonnie spent 13 years in various material and contract pricing roles at Raytheon (Applied Signal Technology).
Contact Us

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