Sifting through the noise with Cisco Crosswork Situation Manager

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Introducing the Cisco Crosswork Solution

The first closed-loop, mass scale automation solution that embraces multi-vendor networks

Mass Awareness

Collect massive amounts of data in a standardized format

Augmented Intelligence

Run analytics, apply machine learning

Proactive Control

Take action with an organized approach
# Digital Transformation Creates Scale & Change

Where are you today?

<table>
<thead>
<tr>
<th>Technology Trends</th>
<th>Stone Age</th>
<th>Last Century</th>
<th>Last Decade</th>
<th>This Decade</th>
<th>Today</th>
<th>Tomorrow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server Count</td>
<td>1</td>
<td>10s</td>
<td>100s</td>
<td>1,000s</td>
<td>10,000s</td>
<td>100,000s</td>
</tr>
<tr>
<td>Deployments/Year</td>
<td>1</td>
<td>2</td>
<td>10s</td>
<td>100s</td>
<td>1,000s</td>
<td>10,000s</td>
</tr>
<tr>
<td>Monitoring Tools</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>25</td>
<td>50+</td>
</tr>
<tr>
<td>Events/Metrics/Day</td>
<td>100s</td>
<td>1000s</td>
<td>100,000s</td>
<td>Millions</td>
<td>Billions</td>
<td>Trillions</td>
</tr>
<tr>
<td>Organizational Silos</td>
<td>1</td>
<td>10</td>
<td>15</td>
<td>25</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Humans Ability to Cope</td>
<td>Yes</td>
<td>Yes</td>
<td>Kind Of</td>
<td>Not Really</td>
<td>Nope</td>
<td>HELP!</td>
</tr>
<tr>
<td>Service Availability</td>
<td>100%</td>
<td>99.999%</td>
<td>99.99%</td>
<td>99.9%</td>
<td>99%</td>
<td>?</td>
</tr>
</tbody>
</table>
Scale & Change Operationalization Challenges

**Technology:** Multiple Domain, Layers, Vendors

Not have a single root cause but multiple causes and domain/layers to relate

**Tools:** No Single Pane of Glass

Under-Optimized Collaboration Unable to Properly Correlate Across Monitoring Ecosystem

**Lack of Context and Visibility:** Operational Island

Decentralization of operations. Too many duplicate and non-actionable tickets.

**No Knowledge Sharing:** No knowledge capture

Lack of Domain Expertise. Knowledge not properly shared and reside in individual.

**AGILITY**

**QUALITY OF END USER EXPERIENCE**

**COST OF OPERATION**

**PRODUCTIVITY**
Leading To...

MTTR

Mean-Time-To-Identify Mean-Time-To-Know Mean-Time-To-Fix Mean-Time-To-Validate

MTTI MTTK MTTF MTTV

80% of MTTR*

Elongated mean-time-to-identify and mean-time-to-know, which makes up 80% of the total mean-time-to-restore

*Forrester research
Transition from the OLD World to the NEW World

**OLD World:** Physical devices described by rules, mapped out in brittle static representations

**NEW World:** Virtualization, SDN/NFV, IoT, 5G

Dynamic algorithms replace rules to manage ever-increasing rate of change
## AIOps: Artificial Intelligence for Network Operations

<table>
<thead>
<tr>
<th>Incident Management Process</th>
<th>Humans</th>
<th>AIOps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyze Millions of Events</td>
<td>Hours</td>
<td>Secs</td>
</tr>
<tr>
<td>Correlate Millions of Events</td>
<td>Hours</td>
<td>Secs</td>
</tr>
<tr>
<td>Anomaly Detection</td>
<td>Hours</td>
<td>Secs</td>
</tr>
<tr>
<td>Detect Repeat Anomalies</td>
<td>Hours</td>
<td>Secs</td>
</tr>
<tr>
<td>Create/Update Tickets</td>
<td>Mins</td>
<td>Secs</td>
</tr>
<tr>
<td>Troubleshoot Tens of Incidents</td>
<td>Mins</td>
<td>Assist</td>
</tr>
<tr>
<td>Determine Root Cause(s)</td>
<td>Mins</td>
<td>Assist</td>
</tr>
<tr>
<td>Restore</td>
<td>Mins</td>
<td>Secs</td>
</tr>
<tr>
<td>Learn from Failure</td>
<td>Mins</td>
<td>Secs</td>
</tr>
</tbody>
</table>

Let algorithms do more of this

Let humans do more of this
Automate event-to-resolution process with AIOps

- Industrialized agile
  Alert ingestion from Cloud, Brownfield and Greenfield

- Unsupervised ML automatically surfaces Signal from Noise Alerts

- Unsupervised and Semi-Supervised ML detects Incidents as clusters in real time

- Semi-Supervised ML drives efficient collaborative workflow reducing MTTR

- ChatOps and triggered resource automation restores service

- Knowledge and predictive insights capture and recycling reduces escalations.

- Early detection, Fewer tickets, Improve Productivity, Reduce MTTR
Integrate in Customer Ecosystem
Cisco Crosswork Situation Manager
Powered by Moogsoft AIOps - Recognized by Gartner

- Key Capabilities
  - Intelligent notification
  - Intelligent collaboration
  - Workflow automation
  - Causal analysis
  - Decision support

Market Guide for AIOps Platforms
Published: 3 August 2017   Id: 000032184

Analyst(s): Will Cappelli, Colin Fletcher, Rajen Prasad

AIOps platforms combine big data and machine learning functionality to support IT operations. I&O leaders should begin the deployment of such platforms to enhance performance monitoring now, but plan extension to service desk and automation over the next five years.

Ref: Innovation Insight for Algorithmic IT Operations Platforms by Gartner 2016
Poll Question
Demo
Cisco Crosswork Situation Manager
Algorithmic Clustering Engine (ACE)

FILTER

SITUATION DETECTION

BEHAVIOR FEEDBACK

WORKFLOW

PREDICTION

UNSUPERVISED

SEMI-SUPERVISED

SUPERVISED and REINFORCED

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Integration Adapters

... and more
Poll Question
Proven Value and Scale

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>75%</td>
<td>Reduction in Operational Noise</td>
</tr>
<tr>
<td>66%</td>
<td>Reduction in Customer Reported Incidents</td>
</tr>
<tr>
<td>34%</td>
<td>Reduction in Incident Tickets</td>
</tr>
<tr>
<td>43%</td>
<td>Reduction in MTTR</td>
</tr>
</tbody>
</table>

* Source: Feedback from 4 Customers
# Proven Value

## Agility

Time to Value

**Faster Deployment & Integration**

- Reduced time and cost of deployment.
- Easy integration in existing customer ecosystem. API/SDK availability.
- Easily integrate with Customer Multi-Vendor Ecosystem.

**90% Reduction** in Operational Noise (fewer incidents) after 45 days.

## Quality of Experience

Reduce MTTR

**Early Detection & Faster Restoration**

- Push notification versus watching a Sea of Red with existing tools and, a reduced Signal to Noise ratio increases quality and productivity
- Integration with Automation Engine to reduce time to fix and validate detected issues.

**Proactive Customer Impact detection up to 24 hours before legacy incident system.**

## Cost of Operations

Productivity/Efficiency

**Increase Productivity**

- No complex models to maintain reduces the cost of ownership and allows the customer to increase change frequency.
- A single pane of glass for all diagnostics activities, knowledge capture and team based collaboration reduce cost per incident (avoid duplicate / wasted effort)

**Example of 50x Operator Productivity improvement through noise reduction and knowledge capture.**
Cisco Crosswork Situation Manager

AIOps Maturity Model

Level 1
- Noise Reduction
  - Compute significance rankings
  - De-duplicate events from the event stream
  - Identify events of interest and roll up alerts

Level 2
- Event Correlation
  - Real-time Situation Detection
  - Add critical context to the event stream:
    - Situation Enrichment
    - Situation Labelling
    - Situation Timeline

Level 3
- Collaboration & Workflow
  - Situation Room:
  - Intelligent Notification
  - Social Collaboration
  - Dashboards
  - Reporting

Level 4
- Knowledge Recycle & Decision Support
  - Knowledge Base
  - Situation History
  - Probable Root Cause
  - Neural Operator Feedback

Level 5
- Ecosystem Automation
  - Service Desk Automation
  - Monitoring Automation
  - Release Automation
  - Run Book Automation

DETECT
FILTER
ACT
diagNoSE
REMEDIATE

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AIOps Benefit

MTTR

Mean-Time-To-Identify
Mean-Time-To-Know
Mean-Time-To-Fix
Mean-Time-To-Validate

MTTI
MTTK
MTTF
MTTV

Real Time Noise Reduction
Social Collaboration & Knowledge Capture
Automate Remediation
Derive Proactive Insights

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Poll Question
Introducing Cisco Crosswork: Mass Scale Automation Delivered

Cisco Crosswork is about being reactive, not just in actions, but in nature. It's about existing strategies to optimize self-serve, self-optimize, and self-protect, by warning and optimizing infrastructure from the inside - without interruption or human intervention.

More Information
www.cisco.com/go/crosswork
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