Automating Maintenance Notifications

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Background

- Delivered via email
- Manually processed
- Automation can help
- Significant barriers to automated processing
Agenda

• Facebook’s maintenance notification automation
  – Parsing challenges

• Standard for formatting maintenance notifications
  – Examples
  – Next steps
What is Carrier Maintenance?

Automated maintenance processing tool with customizable actions
System workflow
Scheduler features

- 30+ providers
- Schedule
- Event aggregation
- Reschedule
- Cancel
- Fuzzy matching
- Reject malformed requests
Scheduler stats

- 1000s of maints/month
- 10% new
- 40% related
- 50% not interesting

400+ engineer hours / month
System workflow
Worker features

• Audits
• Capacity simulations
• Automatic cancellations
• Deprioritization of circuits
• Remediation
• Vendor escalation

1000+ engineer hours/month
Maintenance example
System workflow

SCHEDULER

CARRIER MAINTENANCE LIBRARY

DB

CARRIER MAINTENANCE WORKER
Notification parsing example

ExampleVendor Maintenance Notification 5432432

Vendor Name
Maintenance ID

Day 1 PRIMARY Start date/time: 04/29/2016 23:00 MDT
Day 1 PRIMARY End date/time: 04/30/2016 04:00 MDT

Start date
End date

Number of dates
Service affecting: YES

Maintenance is service affecting

Circuits affected:
CD-54354
CD-54355

Circuits affected

Description:
ExampleVendor to systematically work their way from customer cage to the ExampleVendor cage ensuring all connections are cleaned and scoped and looking for any pinched fiber in the trays.

Contact:
Please contact the NOC at 877.645.xxxx or NOC@examplevendor.com with any questions/concerns.
Scheduler parsing challenges

- Parsing emails
- Unknown templates
- Changing templates
- Human errors
- Handcrafted maintenances
- Unknown file formats
Maintenance notification standard

• Establish formatting conventions
• Mandatory and optional fields
• Extend iCal (RFC 5545)
• Draft standard
  – https://cloud.box.com/v/DRAFT-MaintNote-BCOP
• Python libraries
Example Workflow

• Provider notification
• Consumer parsing
  – Datestamp conversion
  – Ticket creation
Example Workflow

Initial Maintenance Notification - Provider
- Determines Maintenance Required
- Lists Affected Services
- List Affected Accounts
- Generate Maintenance Email
- Attach Maintenance Email
- Send

Initial Maintenance Notification - Consumer
- Receive Maintenance Notification
- X
- Human Parser
- Ticket: Search Create/Update
- Machine Parser: X-MAINT-NOTE
- Ticket: Create/Update

Automation
- X

X-MAINT-NOTE detected
BEGIN:VCALENDAR
VERSION:2.0
PRODID:-//Maint Note//https://github.com/maint-notification//
BEGIN:VEVENT
SUMMARY:Maint Note Example
DTSTART;VALUE=DATE-TIME:20161012T080000Z
DTEND;VALUE=DATE-TIME:20161012T100000Z
DTSTAMP;VALUE=DATE-TIME:20161012T001000Z
UID:42
STATUS:CONFIRMED
SEQUENCE:2
X-MAINTNOTE-PROVIDER:example.com
X-MAINTNOTE-ACCOUNT:137.035999173
X-MAINTNOTE-MAINTENANCE-ID:WorkOrder-31415
X-MAINTNOTE-OBJECT-ID:acme-widgets-as-a-service
X-MAINTNOTE-IMPACT:NO-IMPACT
ORGANIZER;CN="Example NOC":mailto:noone@example.com
END:VEVENT
END:VCALENDAR

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UID:42</td>
<td>Identical to all updates</td>
</tr>
<tr>
<td>STATUS:CONFIRMED</td>
<td>Orders updates</td>
</tr>
<tr>
<td>SEQUENCE:2</td>
<td>Uniquely identifies provider</td>
</tr>
<tr>
<td>X-MAINTNOTE-PROVIDER:example.com</td>
<td>Identifies account associated with service</td>
</tr>
<tr>
<td>X-MAINTNOTE-ACCOUNT:137.035999173</td>
<td>Identifies maintenance</td>
</tr>
<tr>
<td>X-MAINTNOTE-MAINTENANCE-ID:WorkOrder-31415</td>
<td>Identifies service under maintenance</td>
</tr>
<tr>
<td>X-MAINTNOTE-OBJECT-ID:acme-widgets-as-a-service</td>
<td>Identifies impact of maintenance</td>
</tr>
</tbody>
</table>
Next steps

• Community input
• Trial adopters
• BCOP / RFC
• RFP boilerplate
• Advocate
Get involved

• All are welcome
  – Carriers
  – ISPs
  – IX operators
  – Coders
• Facebook group: Maintenance Notification BCOP
  – https://www.facebook.com/groups/maintnote/
• Git - https://github.com/maint-notification/maint-notification
Feedback / Questions?