Predictive Next Best Action for Marketing Demand Generation and Sales

Erik Bower & Josip Lazarevski (Palo Alto Networks)

3/11/17
Agenda

• Current state of marketing
• Omnichannel predictive next best action marketing concept
• The plumbing
• The model and how it was made
• Results so far
First up – A better name

Omnichannel real time predictive next best action marketing

“Machine Marketing”
Marketing nirvana

Right message + Right person + Right time + Omnichannel
What are “channels”?
### How to reach nirvana?

<table>
<thead>
<tr>
<th>Method</th>
<th>Get right message?</th>
<th>Get right timing?</th>
<th>Target the right people?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td>A/B testing</td>
<td>Test send times, schedule, some have automatic “throttling”</td>
<td>Segmentation 1-2-1 and audience based</td>
</tr>
<tr>
<td>Web Personalization</td>
<td>A/B testing</td>
<td>Depends on the prospect</td>
<td>Segmentation 1-2-1 and audience based</td>
</tr>
<tr>
<td>Display/Programmatic</td>
<td>Advanced optimization trained on conversion</td>
<td>Day parting, frequency capping</td>
<td>Segmentation 1-2-1 and audience based</td>
</tr>
</tbody>
</table>
Example “Buyer’s Journey”
Traditional Marketing Automation
- Logic is static
- Content gap, content age
- Coverage is spotty
- Customer journeys are infinite

VS.

Machine Marketing
- Dynamic and adaptive
- Greater coverage of micro-segments
- Predicts best content/offer
- Syncs and optimizes across channels
How would Machine Marketing work?
First you need the messages or “offers”
Then you need to be able to sync messages across channels.
Then deploy that message on the web....
....on the display channel....
..and via email channel
Figure out the best time to send an email

**Modeling Period**
- TRUE: Clicked on at least 1 email
- FALSE: Not clicked on any email

Contacts we have sent at least 1 email between July 2016 and December 2016

6 MONTHS

**Performance Testing Period**
- TRUE: Clicked on at least 1 email
- FALSE: Not clicked on any email

Contacts we have sent at least 1 email on January 2017

1 MONTH

**Accuracy**
- July 2016 – December 2016: 77%
- January 2017: 80%
Identity resolution + Behavioral data + CRM data + Other data
A bit complicated to pull off
How the model was built
Understand the audience and their preferences

Lookalike modeling using similarity search to understand user behavior
B2B: Understanding account/company behavior

Lookalike modeling using similarity search (similar to household in B2C)
Hybrid of boosted trees and ensemble trees
These are the people in your neighborhood

All that joined together forms our neighborhoods from where we extract knowledge – collaborative filtering
Organizing the messages with keyword mining

Humans got tagging wrong 70% of the time

FIREWALL OVERVIEW

Palo Alto Networks Next-Generation Firewall

Fundamental shifts in application usage, user behavior, and complex, convoluted network infrastructure create a threat landscape that exposes weaknesses in traditional port-based network security. Your users want access to an increasing number of applications, operating across a wide range of device types, often with little regard for the business or security risks. Meanwhile, data center expansion, network segmentation, virtualization, and mobility initiatives are forcing you to rethink how to enable access to applications and data, while protecting your network from a new, more sophisticated class of advanced threats that evade traditional security mechanisms.

Historically, you were left with two basic choices – either block everything in the interest of network security, or enable everything in the interest of your business. These choices left little room for compromise. The Palo Alto Networks® Next-Generation Security Platform provides you with a way to safely enable the applications your users need by allowing access while preventing cybersecurity threats.

Our Next-Generation Firewall is the core of the Next-Generation Security Platform, designed from the ground up to address the most sophisticated threats. The Next-Generation Firewall inspects all traffic - including applications, threats and content – and ties it to the user, regardless of location or device type. The application, content and user – the elements that run your business - become integral components of your enterprise security policy. The result is the ability to align security with your key business initiatives. With our Next-Generation Security Platform, you reduce response times to incidents, discover unknown threats, and streamline security network deployment.

- Safely enable applications, users, and content by classifying all traffic, determining the business use case, and assigning policies to allow and protect access to relevant applications, including software-as-a-service (SaaS) applications.
- Prevent threats by eliminating unwanted applications to reduce your threat footprint and apply targeted security policies to block known vulnerability exploits, viruses, spyware, botnets and unknown malware (APTs).
The formula

+ **Keyword Clustering** (KNN, SVM)
+ **Term Grading**

= **Keyword – Topic Mapping**
**Language recognition**

- We want to localize our recommendations but we don’t know their language
- Using blend of R script and KNIME we can recognize 32 languages

```r
library("textcat");
xls<- knime.in
result.detectedLanguage<-textcat(xls$DMText)
knime.out <-data.frame(xls$"RECSentity.id",result.detectedLanguage);
```
Deploy to Adobe Marketing Cloud

Understand the audience and their preferences

Understand the content of assets

Asset to person matching
Results so far
Homepage “King of the Hill” results

LIGHTCYBER JOINS PALO ALTO NETWORKS
Adding award-winning automated behavioral analytics to our Next-Generation Security Platform

PREDICTED

+1300%
Programmatic in Doubleclick results

Dynamically Populated

10 THINGS YOUR NEXT FIREWALL MUST DO

Headline
Button
Exit URL

Ad Populates on 3rd Party Sites

Click-Thru-Rate (CTR) By Audience

1st Party Cookies Display
Standard Retargeting
Maestro Display

Standard Display CTR: .027%
Retargeting CTR: .080%
Maestro Display CTR: .351%
+338% Increase in Engagement
Early signs are positive
If you are a marketing person, don’t worry......

I’m not going to take your job

No really