Application Intrusion Detection: Security for Cloud Deployments

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More and more companies are turning over to a cloud based infrastructure, there has been a lack of security measures to cover all the new threats associated with moving to the cloud.

Our project searches through data that is generated every time a user logs into a system and organizes it into means that makes it easier for a CIRT team to understand.

If there is a discrepancy in the data, our system will notify the user of the anomaly and which user prompted it. By doing so we could alert to possible intrusions of malicious users in the system and handle the problem before any damage can be done.

Right now our project detects anomalies in location, repeated failures, and other red flags that coincide with the actions of a possible intruder.

By taking in sets of authentication logs, our project is able to comb through thousands of logs over set periods of time, a process that would be time consuming and tedious for any security team to handle manually.

<table>
<thead>
<tr>
<th>User Name</th>
<th>Event Time</th>
<th>Event Description</th>
<th>Event Value</th>
<th>Event Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bob</td>
<td>7:30 PM</td>
<td>Authenticated login</td>
<td>User ID: 123456</td>
<td>Location: VCU Student Commons</td>
</tr>
<tr>
<td>Bob</td>
<td>8:00 PM</td>
<td>Authorized logout</td>
<td>User ID: 123456</td>
<td>Location: China</td>
</tr>
</tbody>
</table>

Obviously this is not physically possible so we would alert on Bob to see if his account was being infiltrated. By using location and several other criterion, we can alert to these anomalies to see if they were pure happenstance or intended attack. Using this amalgamated data, we can take certain fields and compare them to see if anything is subject to scrutiny. If the anomaly is too far from the norm or is suspicious, measures can be taken in order to protect private information from the unwanted trespasser.

Why is it Important?
1. Big companies have thousands of login attempts every day
2. It is not likely that a cyber-security team is able to review all the logs generated, thus leaving openings for intruders to work their way into the systems
3. They could then steal information, damage systems, and generally cost the company money and man hours.
4. With our system in place, the logs are able to be reviewed, and the cyber-security team only has to deal with the anomalies that were found, making the whole deal harder for attackers to go unnoticed.

Nothing is like it:
1. The biggest attribute is the marketable potential of this product.
2. No big brand product is out on the market covering the same needs as our product could lead to very promising marketability opportunities.
3. It is only furthered by the fact that many companies are moving to the cloud and don’t know how to handle the security aspects with the change.