DroppedIn: Remotely Exploiting the Dropbox SDK for Android

(The CVE-2014-8889 Vulneribilty)

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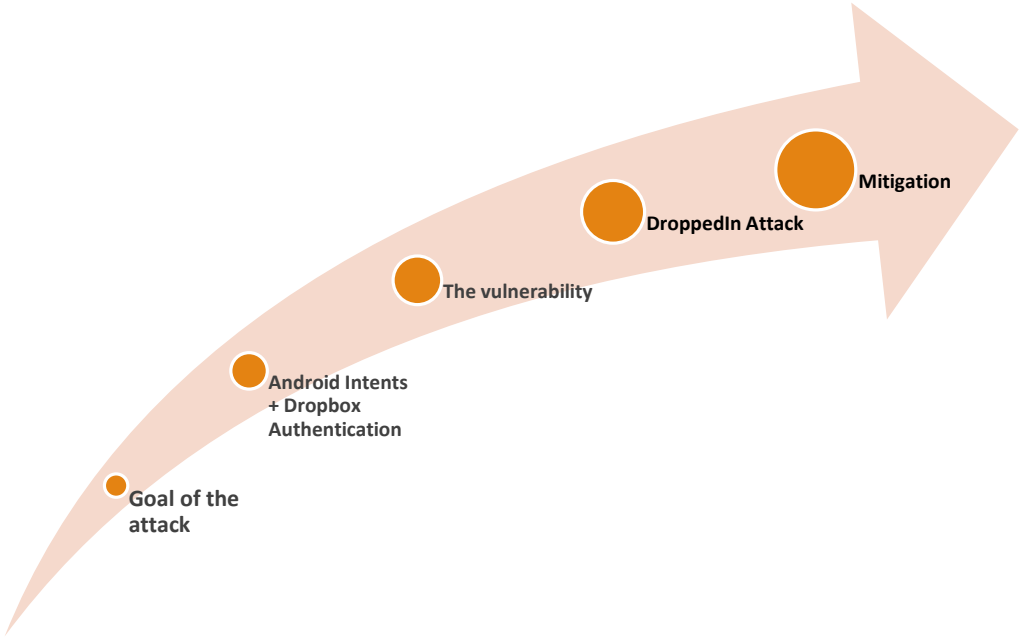
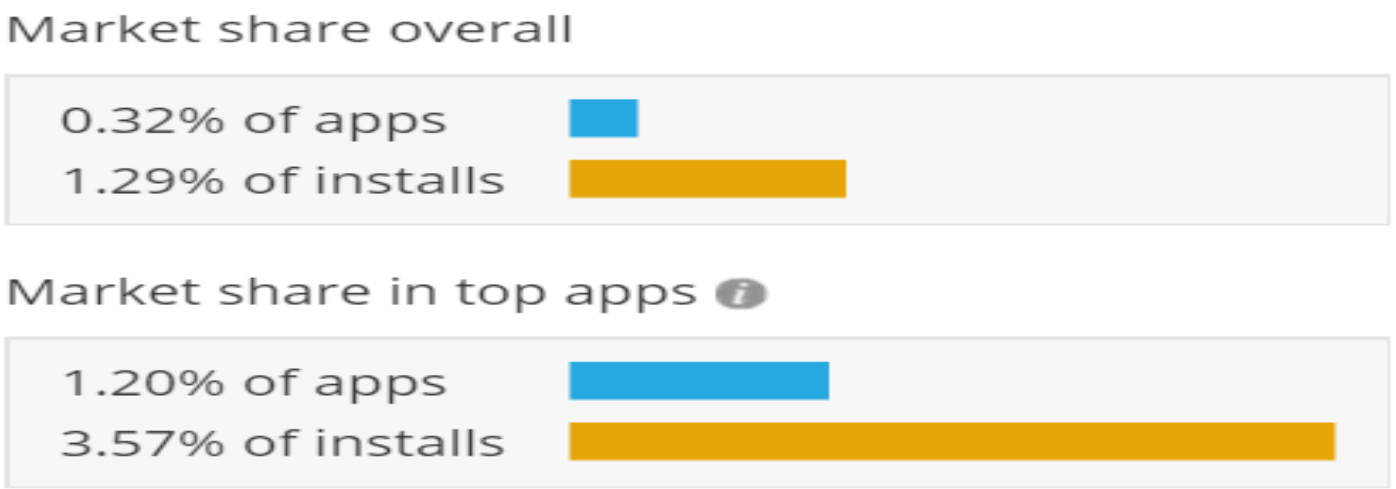
Outline


Mitigation
DroppedIn Attack
The vulnerability
Android Intents
+ Dropbox
Authentication
Goal of the
attack

Data on the Cloud

- World is now storing private personal and business data on the cloud
- Cloud data is not only by the user, but also by apps (photo sharing, storage … etc.)
- Cloud services often provide a framework (SDK) that apps can utilize
  - Example: The Dropbox SDK for Android

Dropbox API - Stats

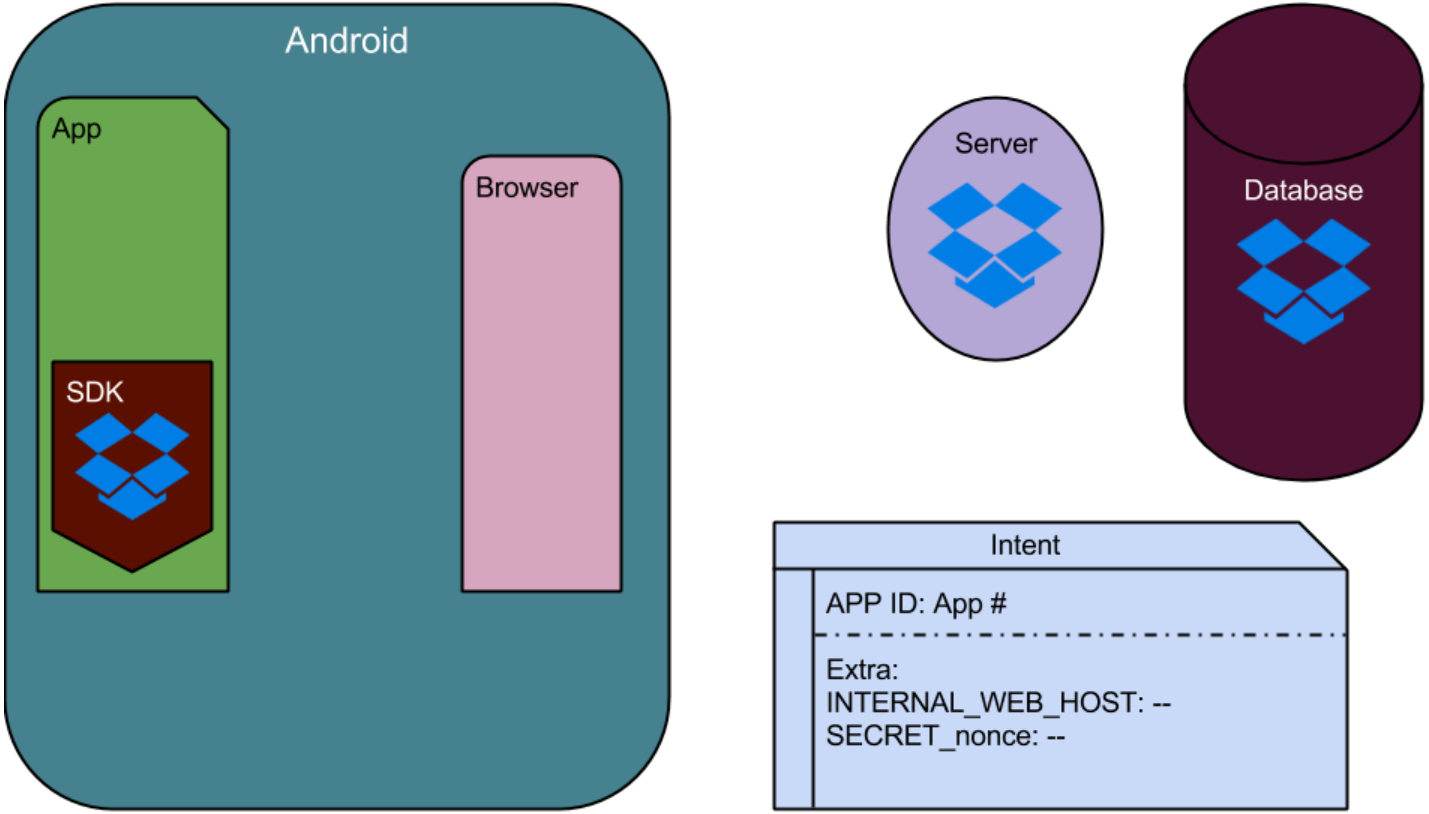


* Stats according to AppBrain

Android & Dropbox

- Android applications execute in a sandbox environment
- Apps can’t access another app’s data directly
- Apps communicate using ‘**Intents**’

DropBox SDK Authentication (Normal Flow)



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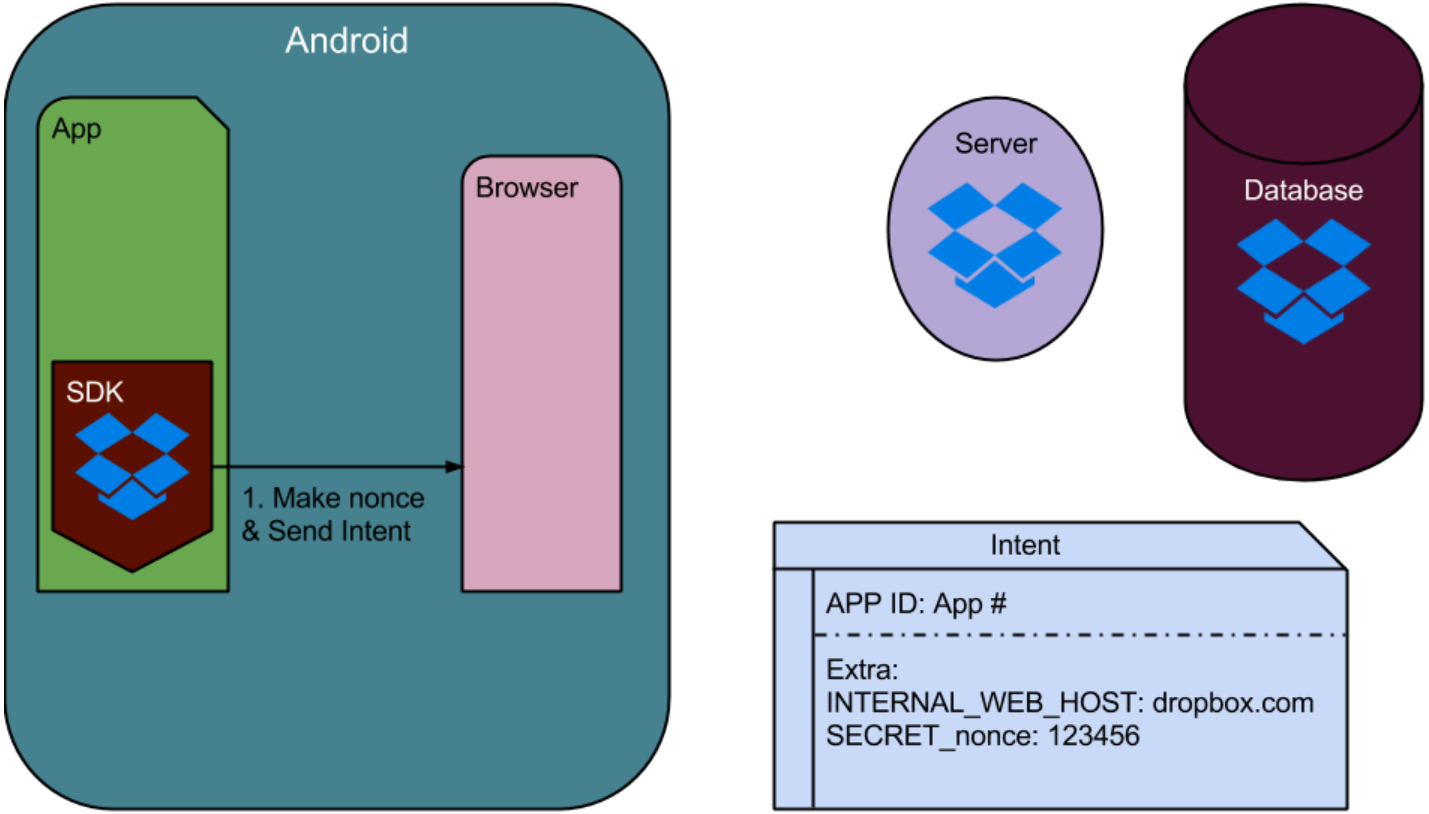

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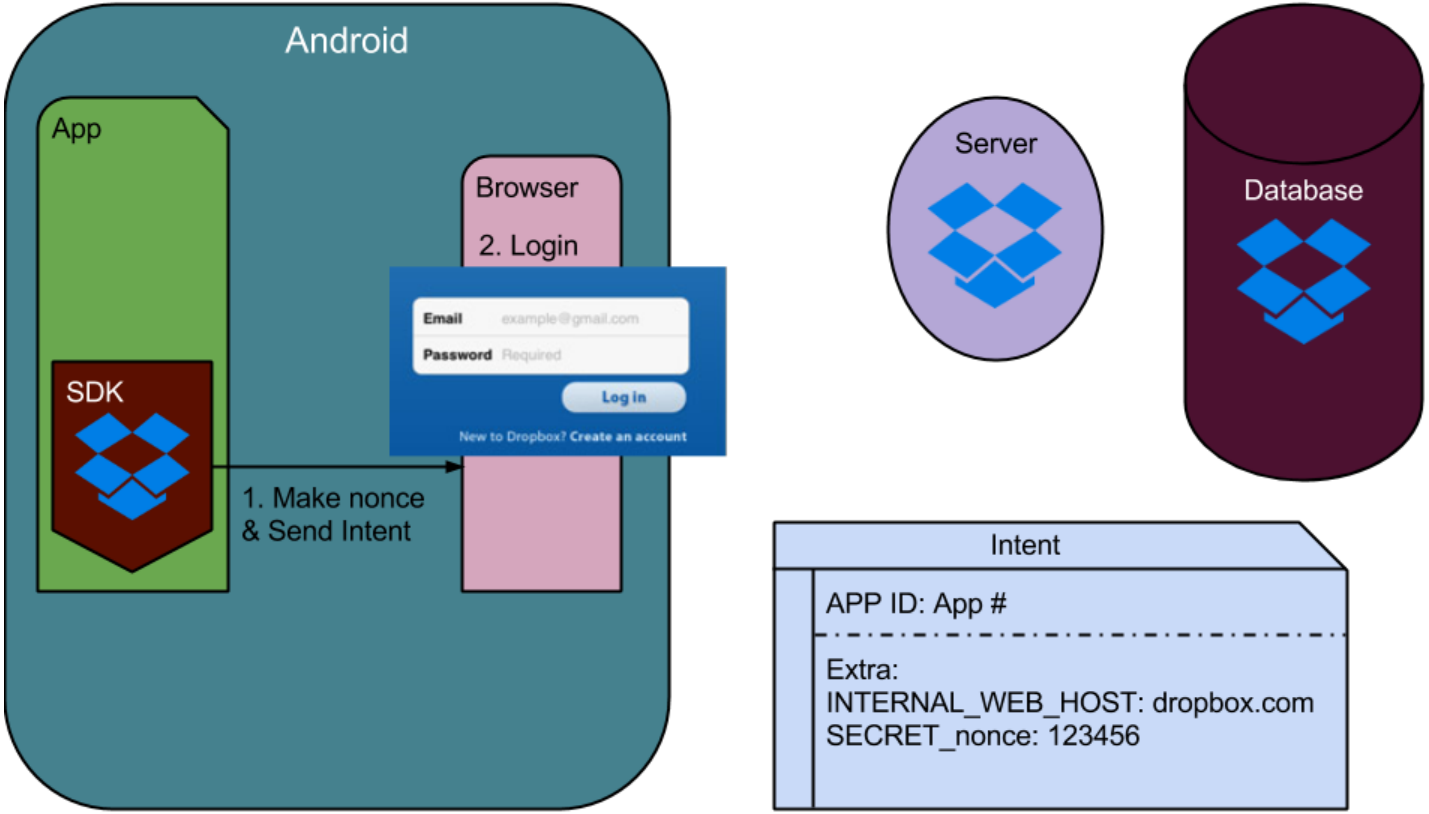

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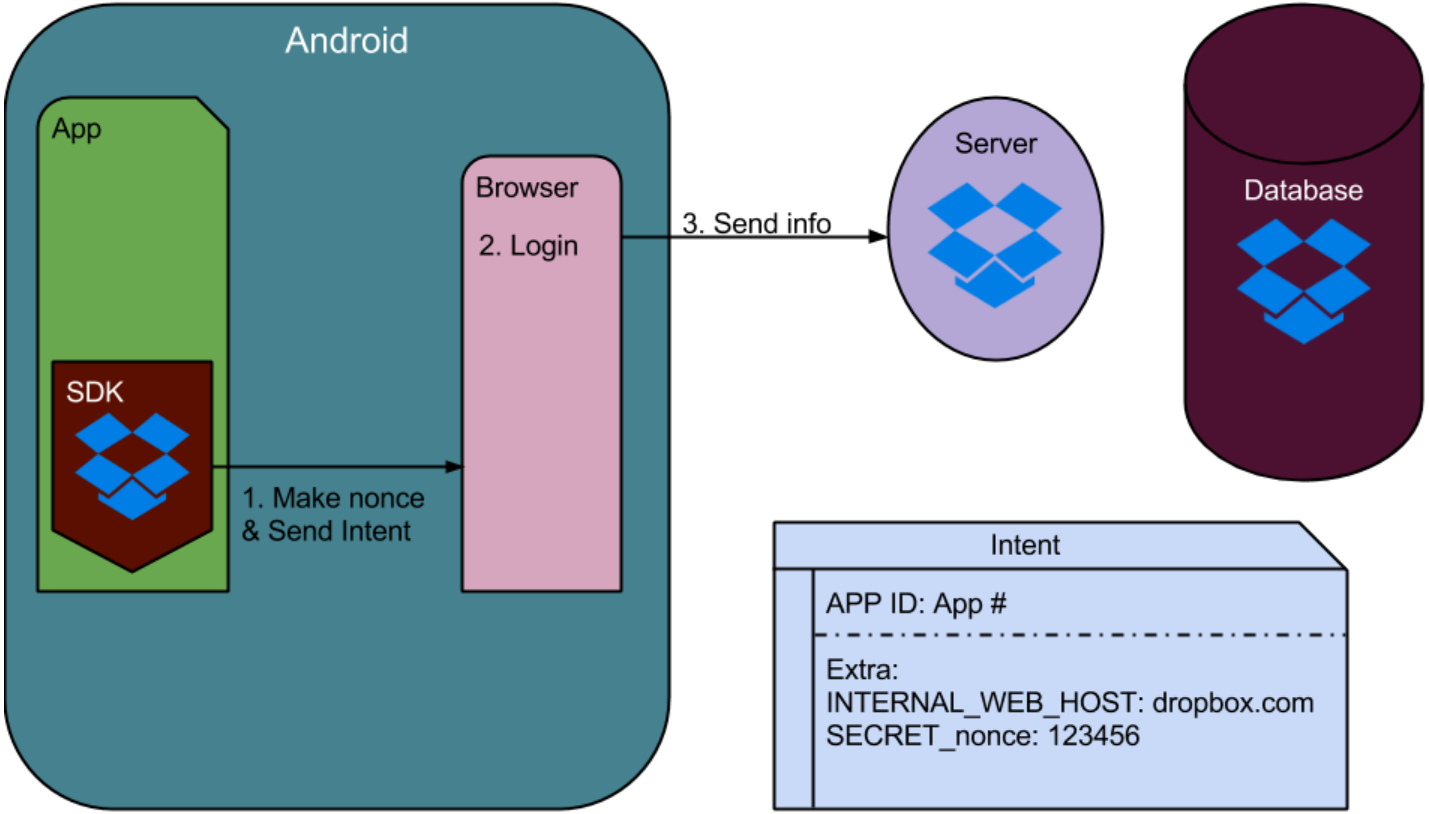

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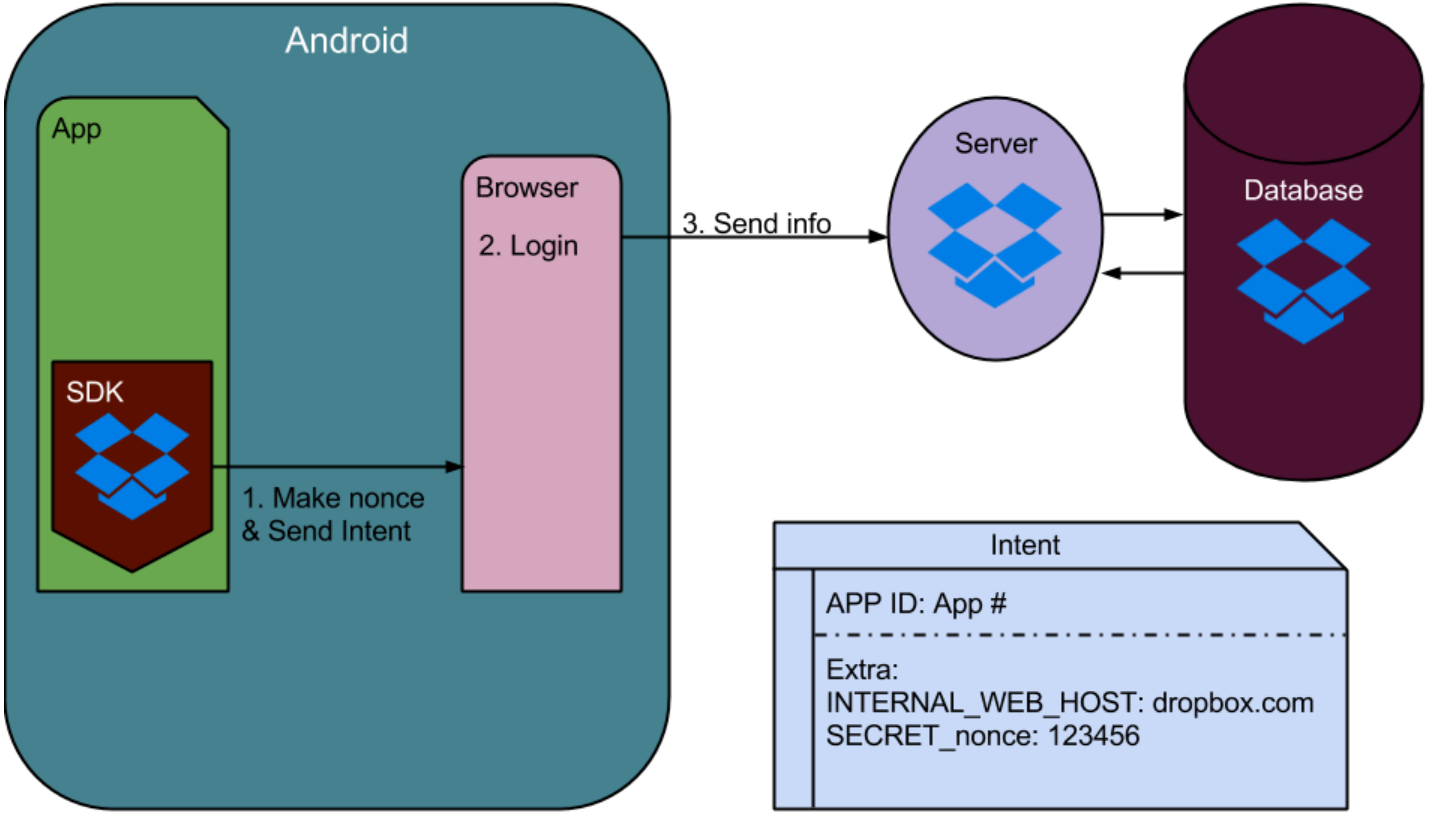

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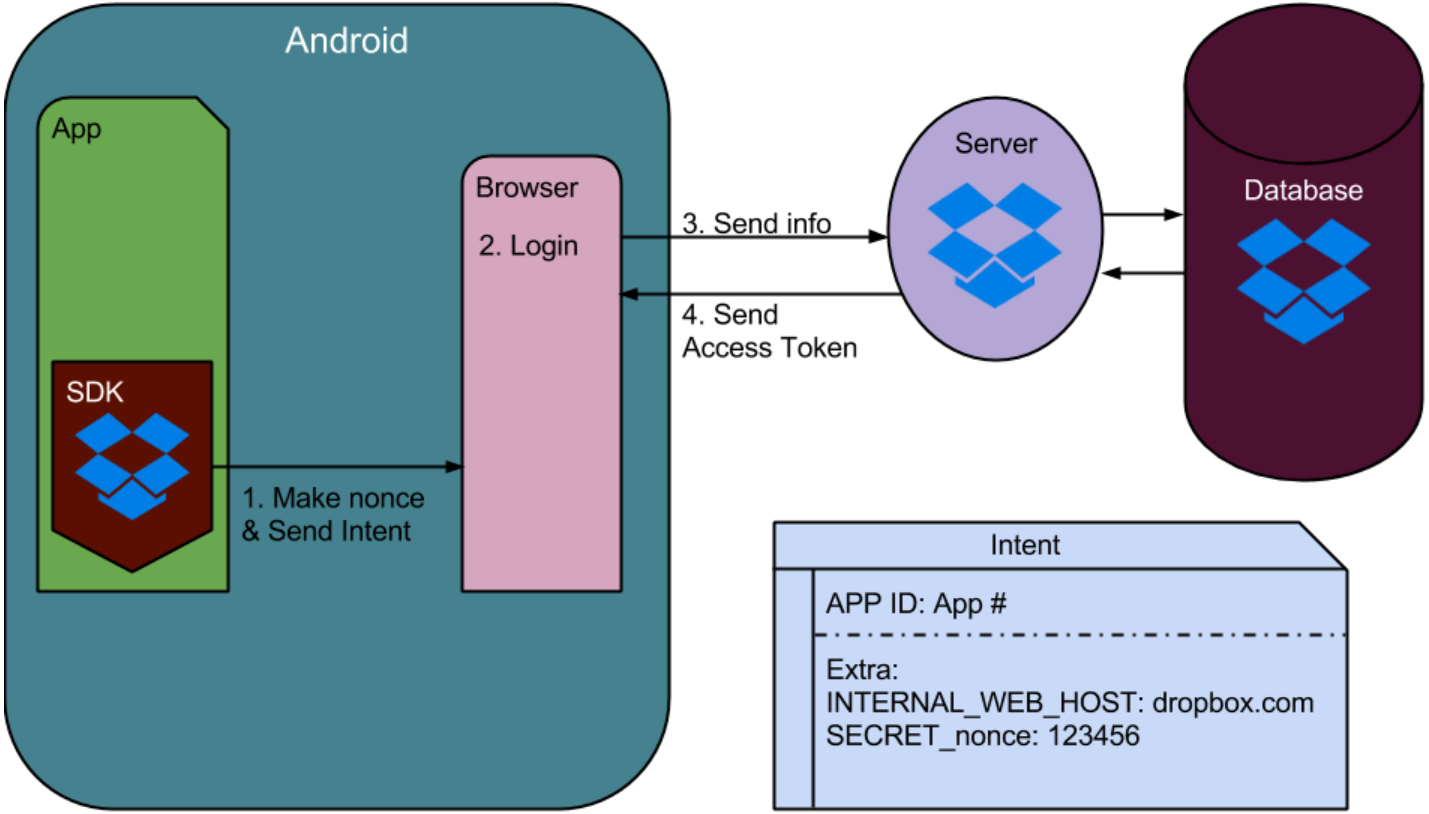

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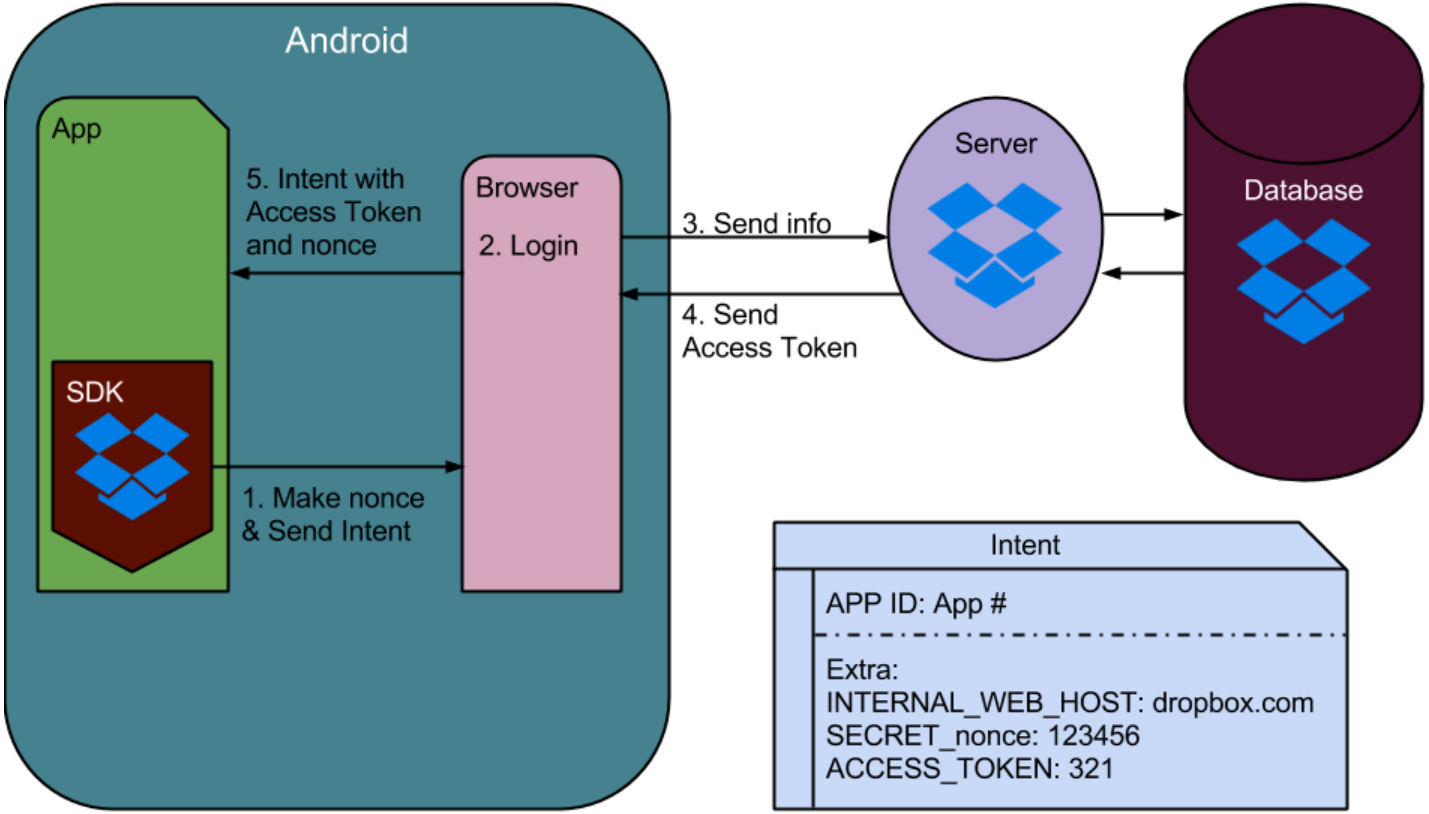

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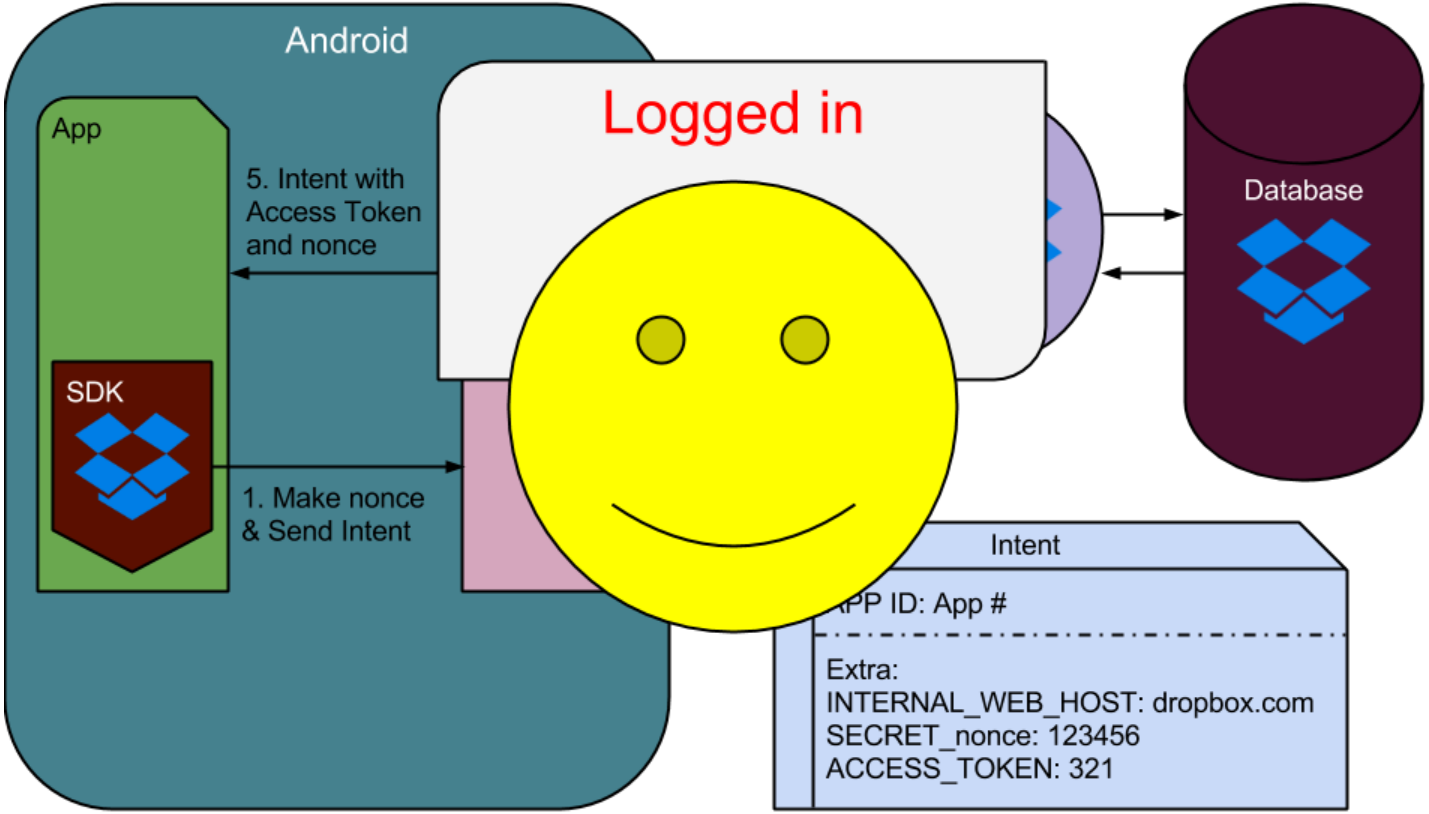


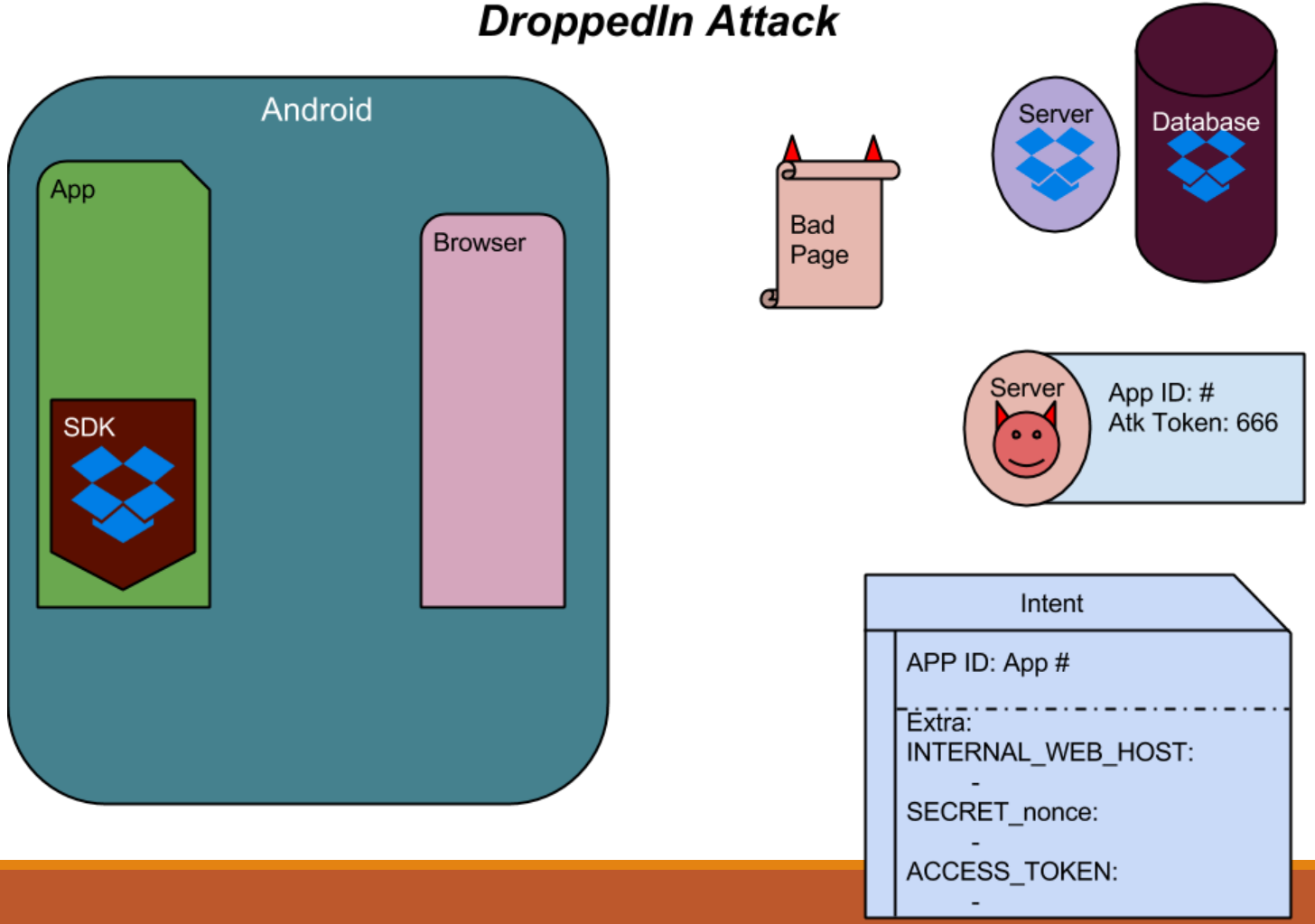
DroppedIn Attack

- Link the app with the attacker's account instead of the victim's to either:
  - have the victim upload sensitive information or
  - download malicious, attacker-controlled data that may be used as part of other attacks.

The field "INTERNAL_WEB_HOST" allows this to occur

******Only works when DropBox App is NOT Installed******

DroppedIn Attack



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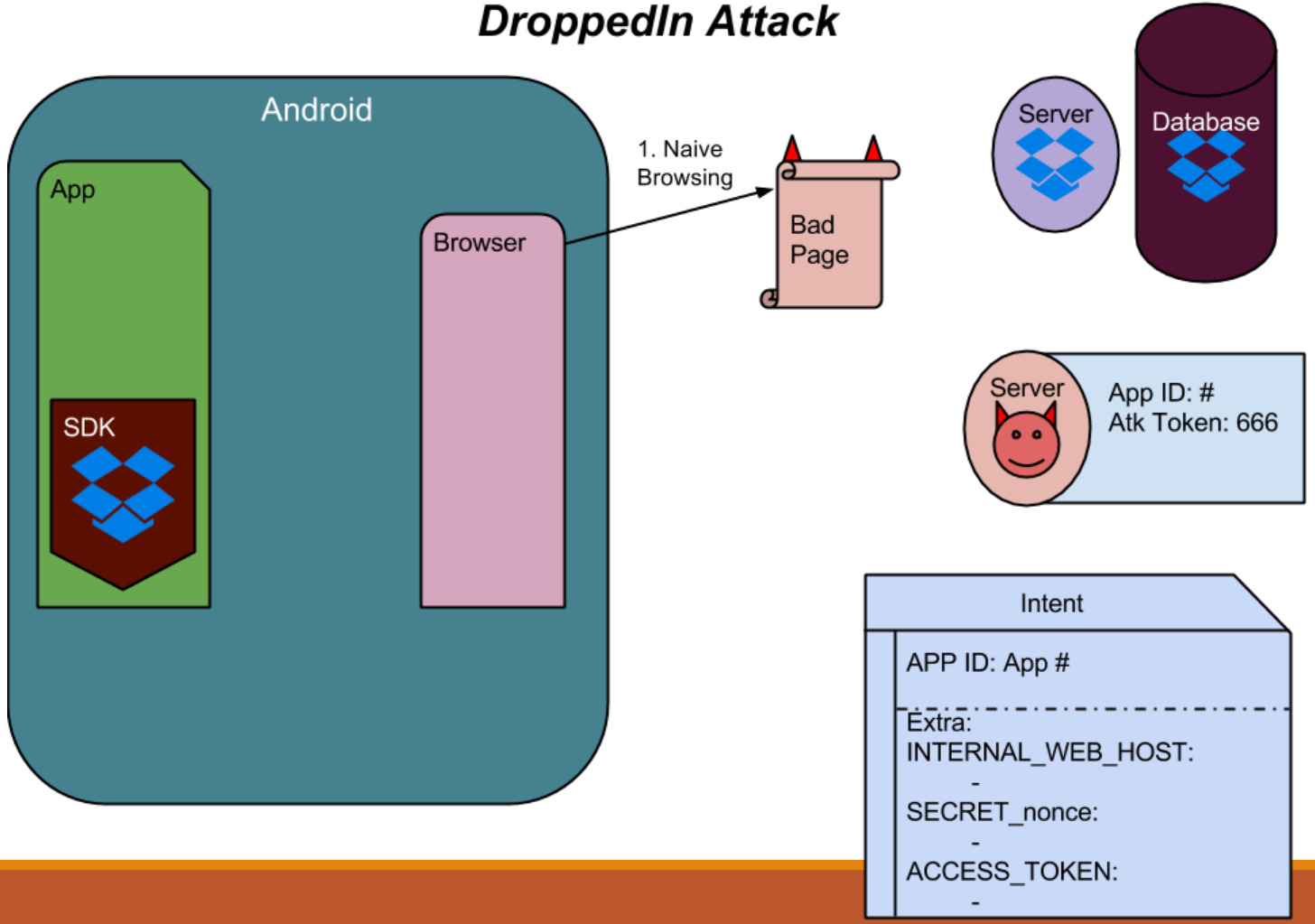

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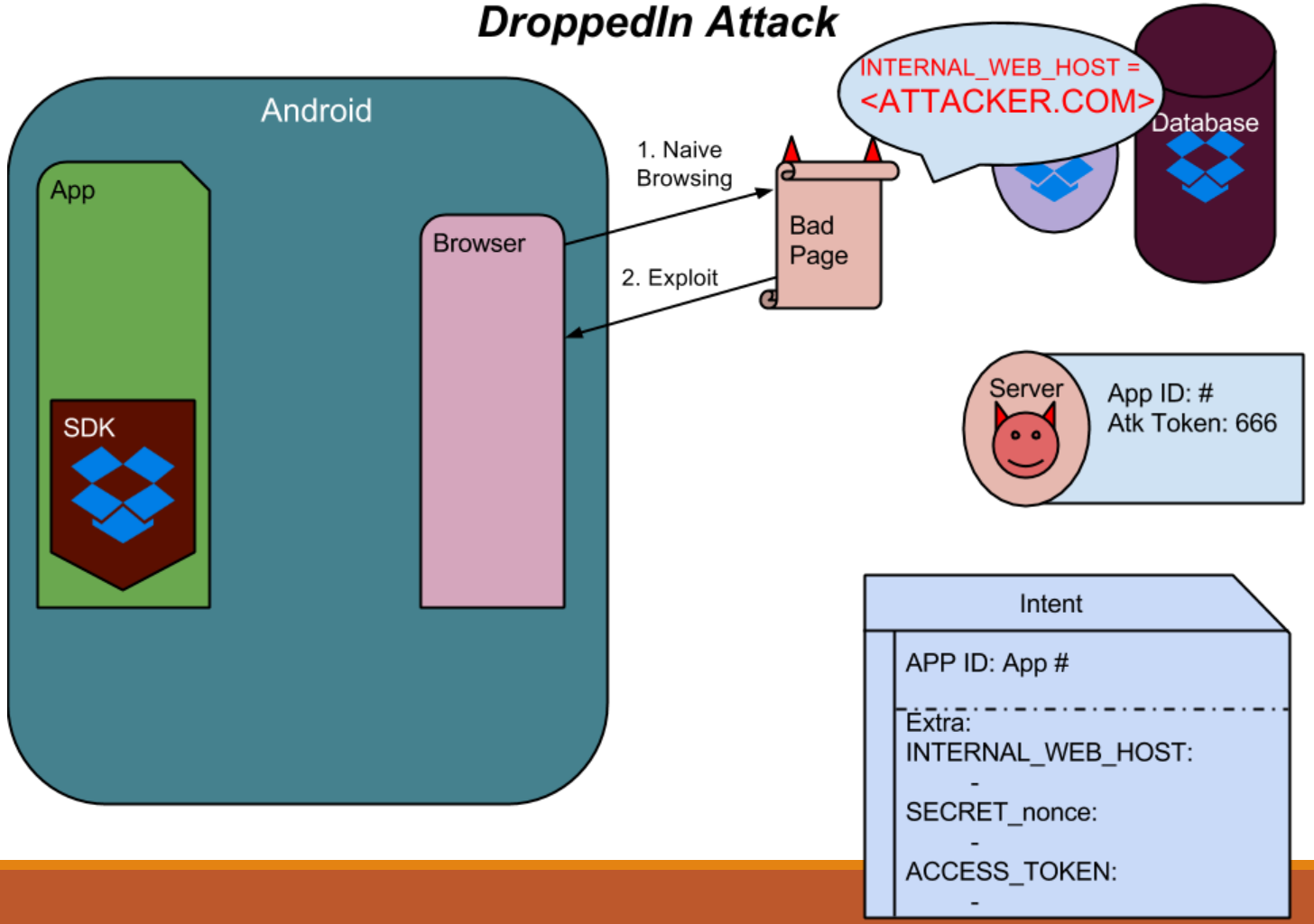

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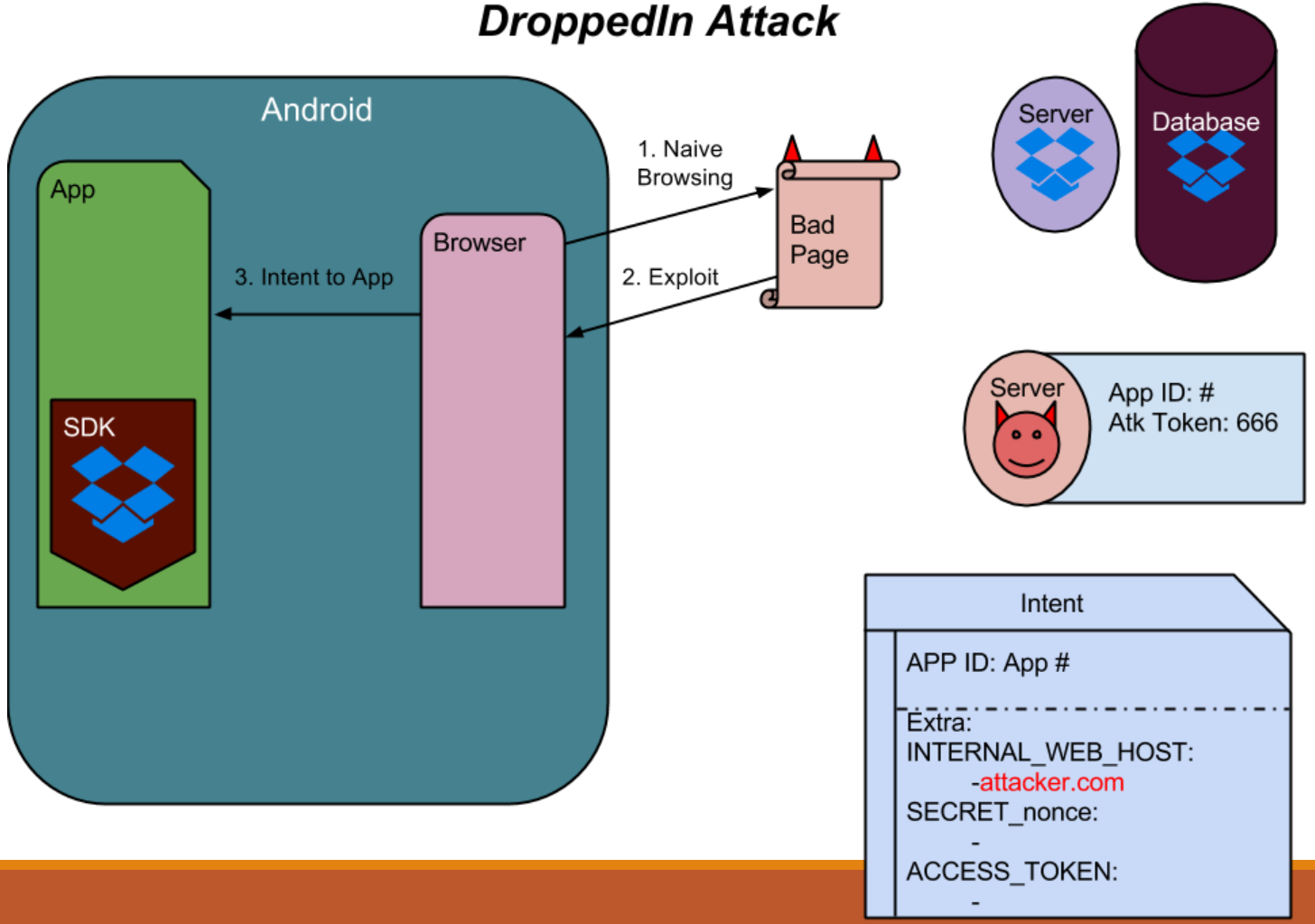

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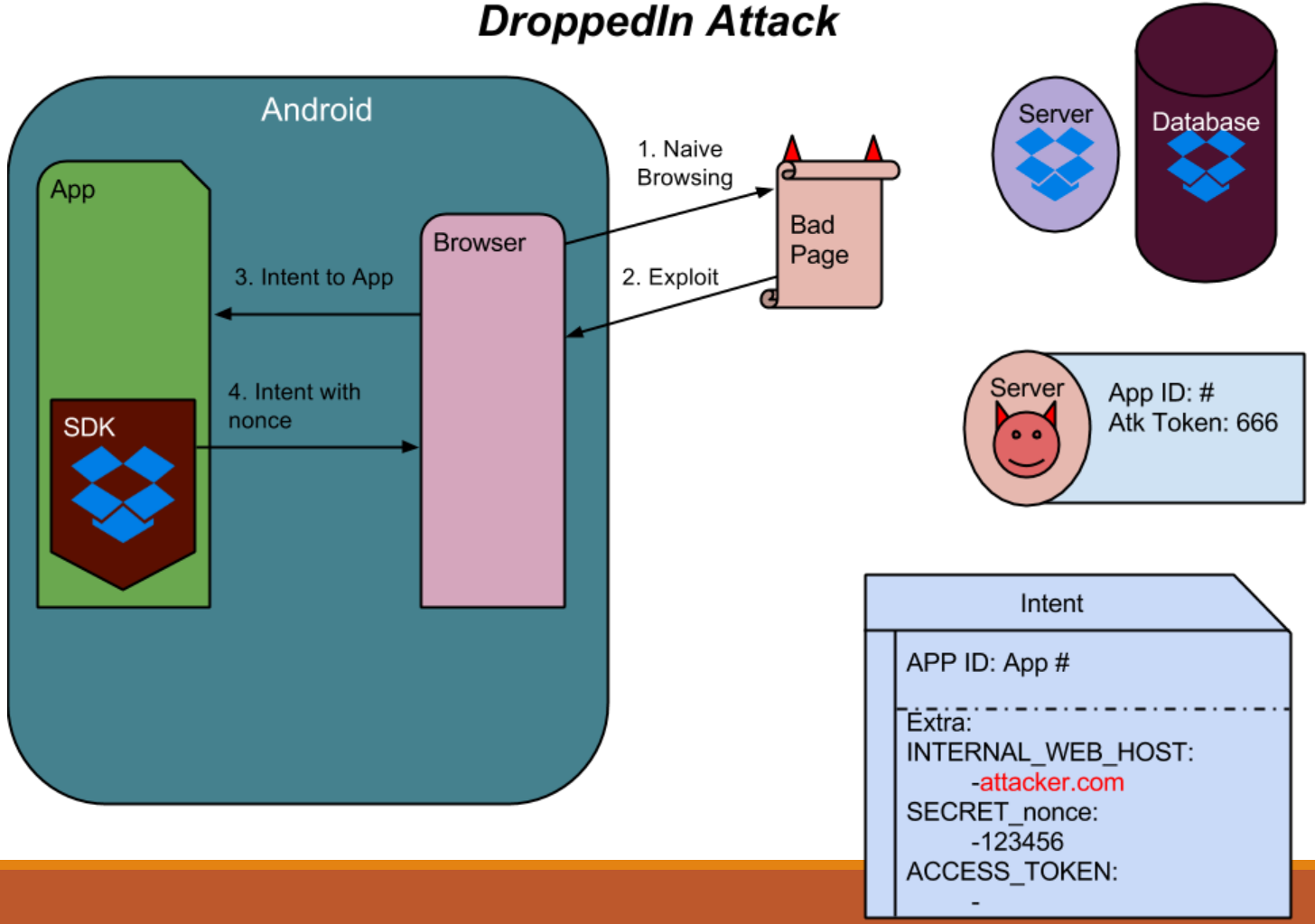

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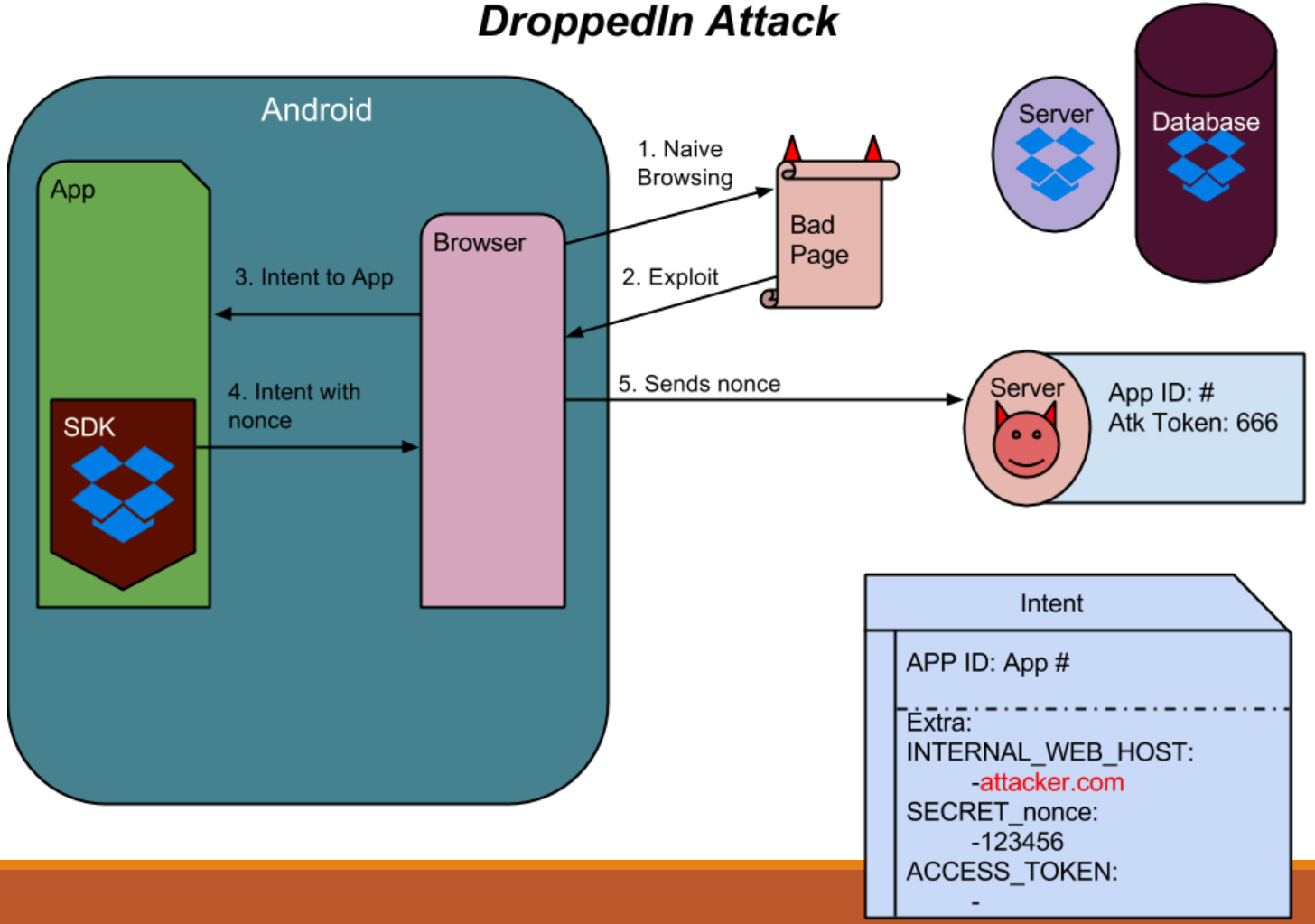

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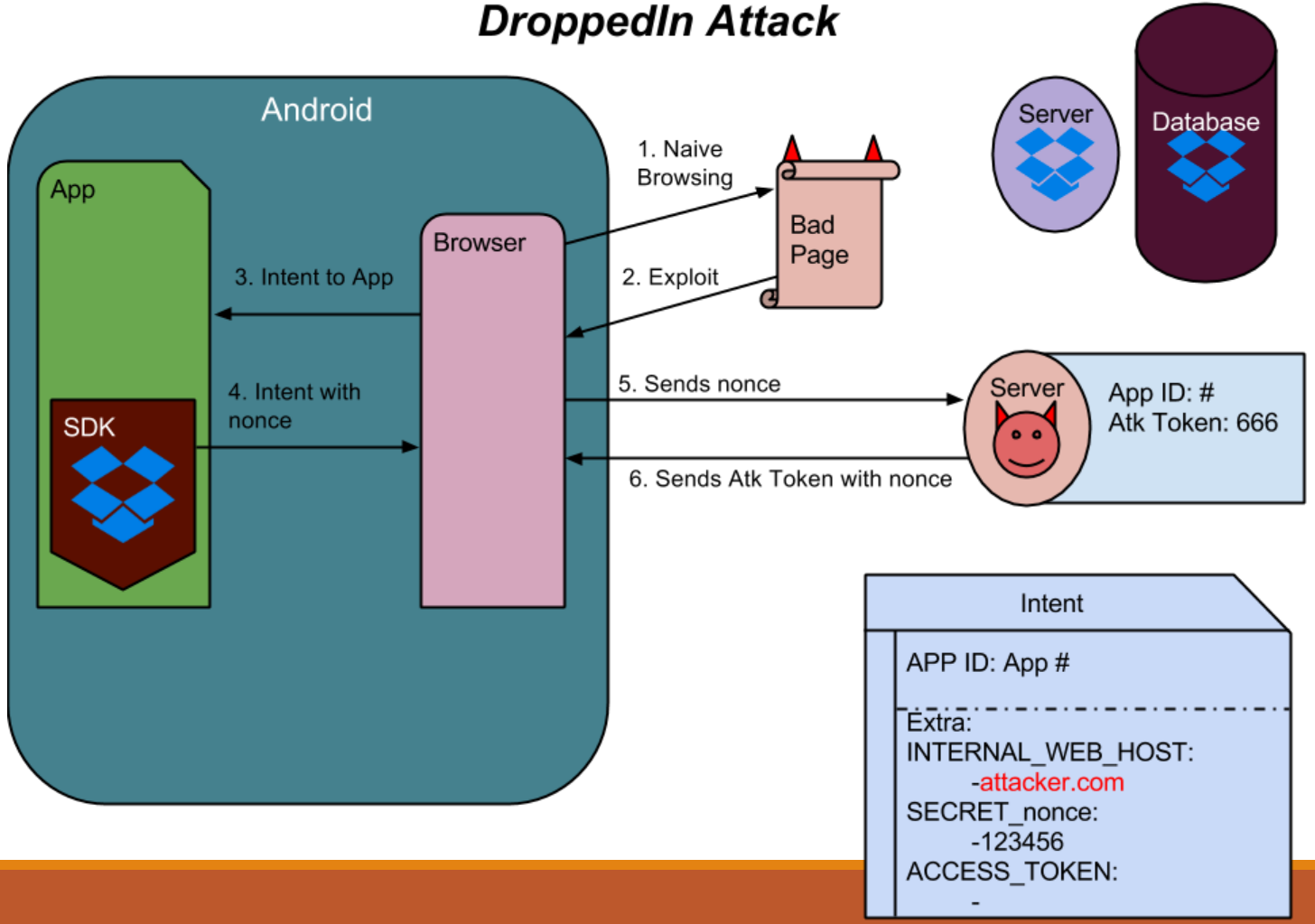

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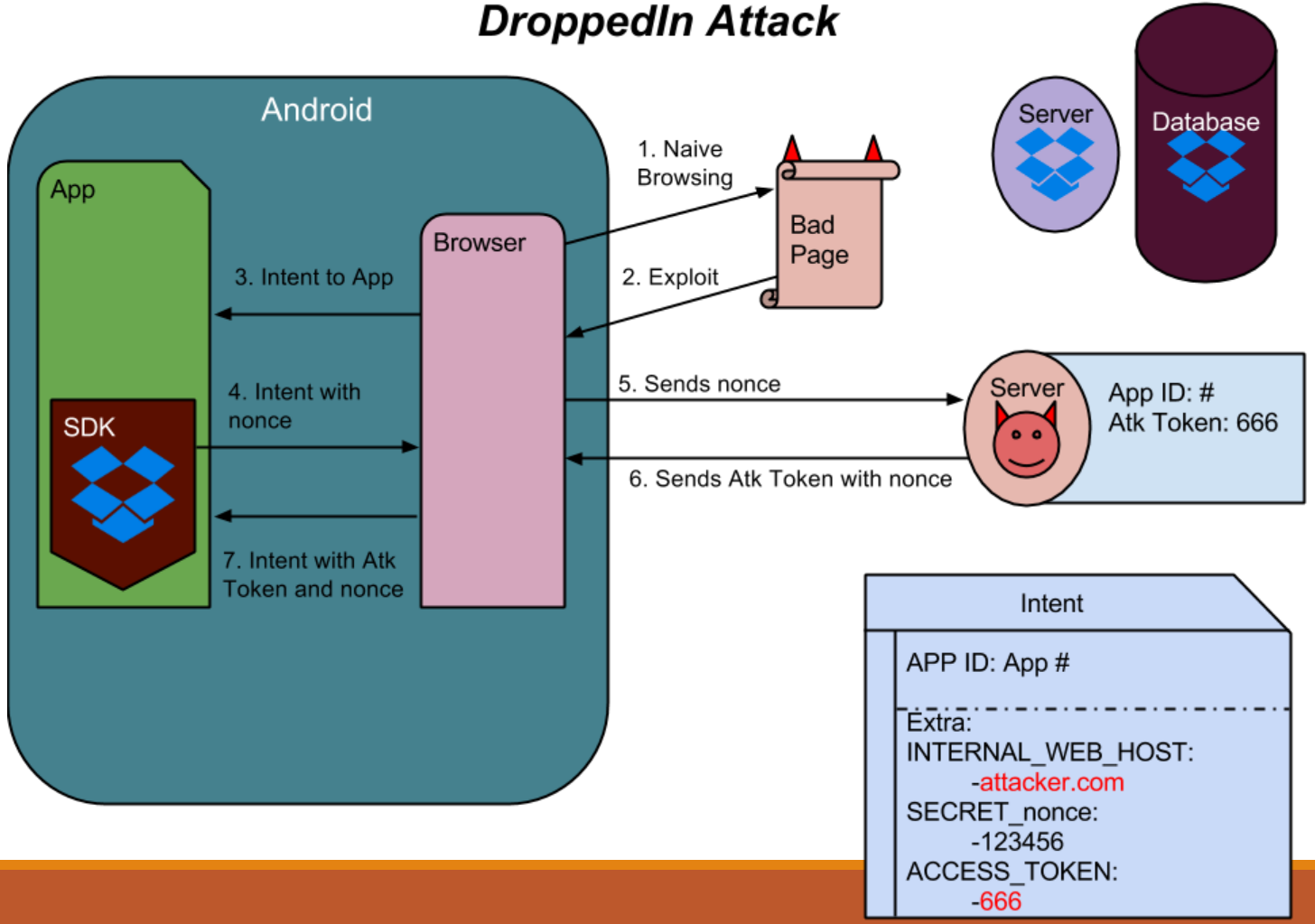

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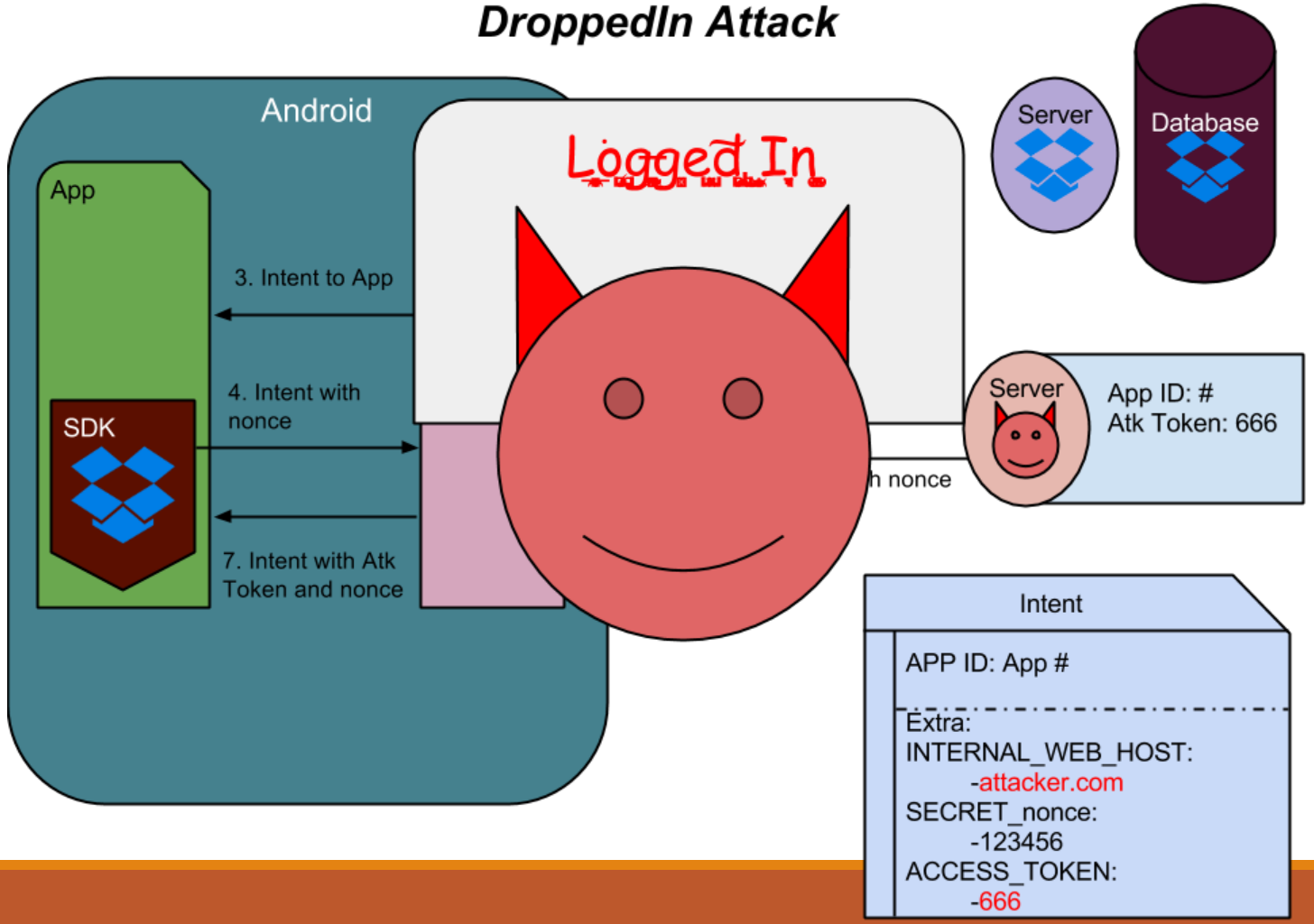

Response from Dropbox

- December 1, 2014 - Vulnerabilities disclosed to Dropbox.
- December 2, 2014 - Dropbox confirmed issue, started working on patch.
- December 5, 2014 - Patch available (Dropbox SDK for Android version 1.6.2)
- March 11, 2015 - Public disclosure

Mitigation

- Authentication no longer accepts input parameters from Intent's extras
  - Don't allow inputs for INTERNAL_WEB_HOST
- As a developer:
  - Update Dropbox SDK for Android to Version 1.6.2 or higher
- As a user:
  - Install Dropbox onto your android device
  - Make sure you update your apps to their most recent version

References

- http://ibm.co/1Hosb02
- http://securityintelligence.com/droppedin-remotely-exploitable-vulnerability-in-the-dropbox-sdk-for-android/#.VQ8rzjCUy1l
- https://blogs.dropbox.com/developers/2015/03/security-bug-resolved-in-the-dropbox-sdks-for-android/