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Why “in-the-cloud” scanning is not a solution

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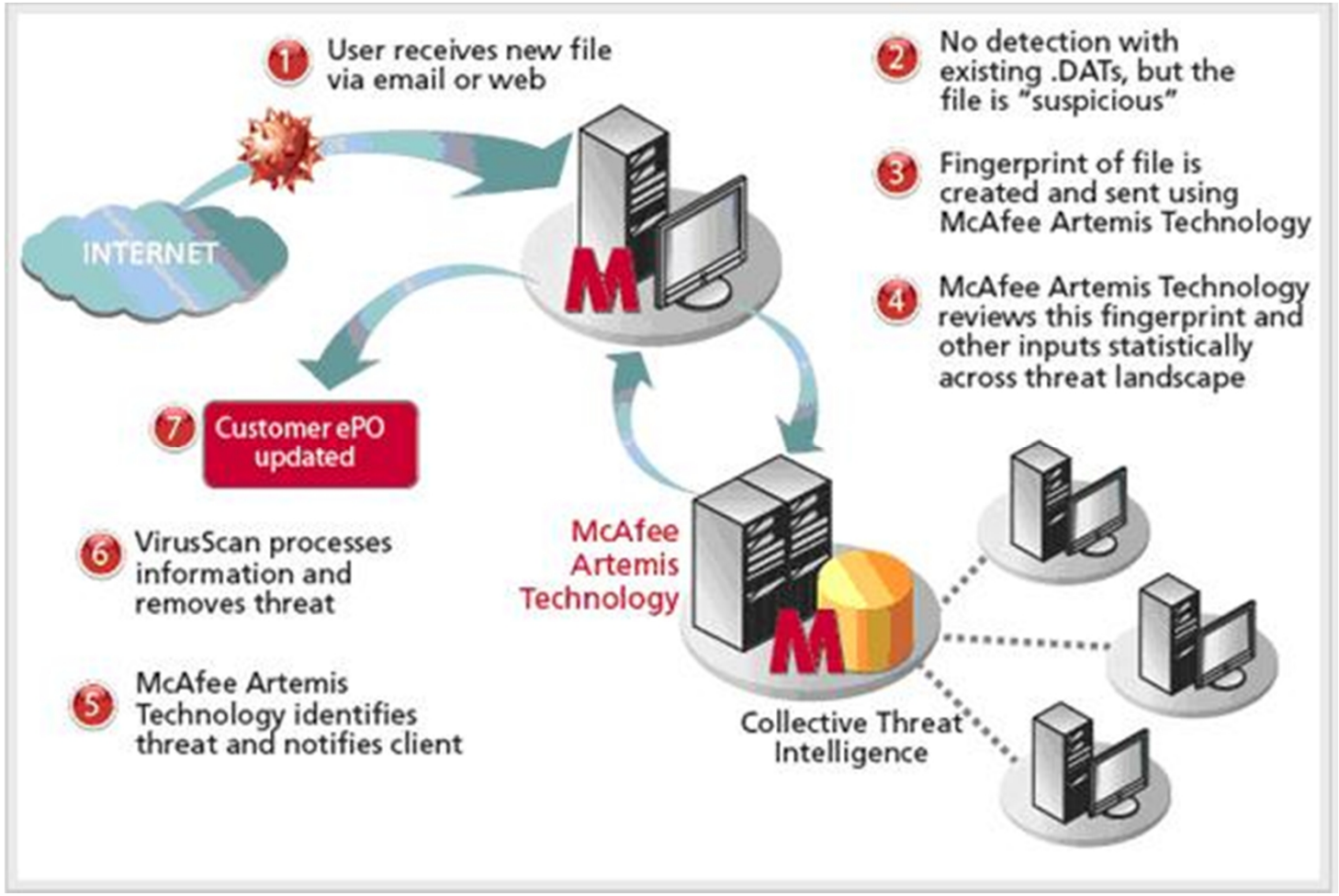
Disclaimer

- This presentation is not meant to bash in-the-cloud technologies nor the vendors that implement and use those
- This presentation is merely a reaction to the marketing hype, that tries to praise in-the-cloud technology as the holy grail of anti-virus software
- This presentation is going to put a few things into perspective

Content

- Theoretical Aspects
- Testing Experiences
  - The cloud doesn‘t know more than others
  - The cloud is slow
  - The cloud is unreliable
  - The cloud is getting bigger, the local databases too?
- Conclusion

Theoretical Aspects

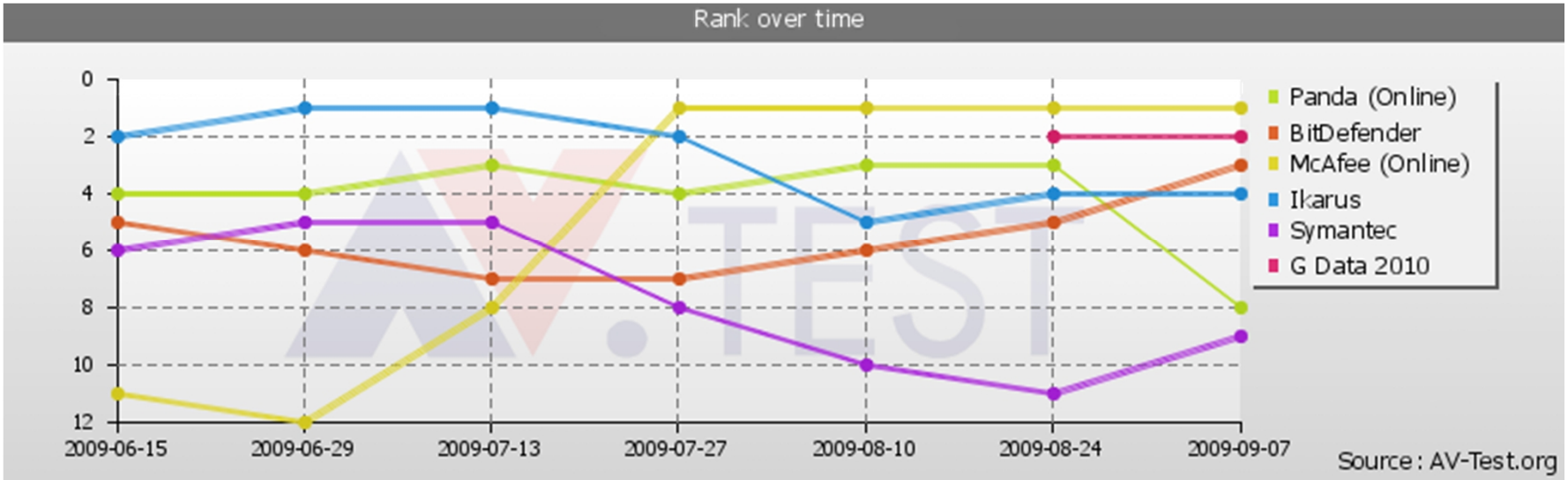


Theoretical Aspects

- Essentially:
  - Moving the signature databases for static detection from the local PC to the cloud
  - The protection lifecycle pretty much remains the same, only the way of deplyoing updates changes
  - New points of failure are introduced, when depending on a working internet connection to identify threats
  - Instead of developing new protection technologies, the existing ones are stressed to the maximum, which doesn‘t solve any problems, but only delays them a bit

Testing Experiences

- The cloud doesn‘t know more than others
  - In-the-cloud products are not automatically #1 in our tests
  - A lot other products are as good or even better without any cloud



Testing Experiences

- The cloud doesn‘t know more than others
  - Detection rates are very similar for the top products, no matter if a cloud is used or not
  - The top six products in our CollScan test are ranging between 99.97% and 99.77%
  - Only two of those six very good products (in regard to static detection) use in-the-cloud scanning, four others don‘t
  - Top ten products are all above 99% and even the top 20 are all above 95%

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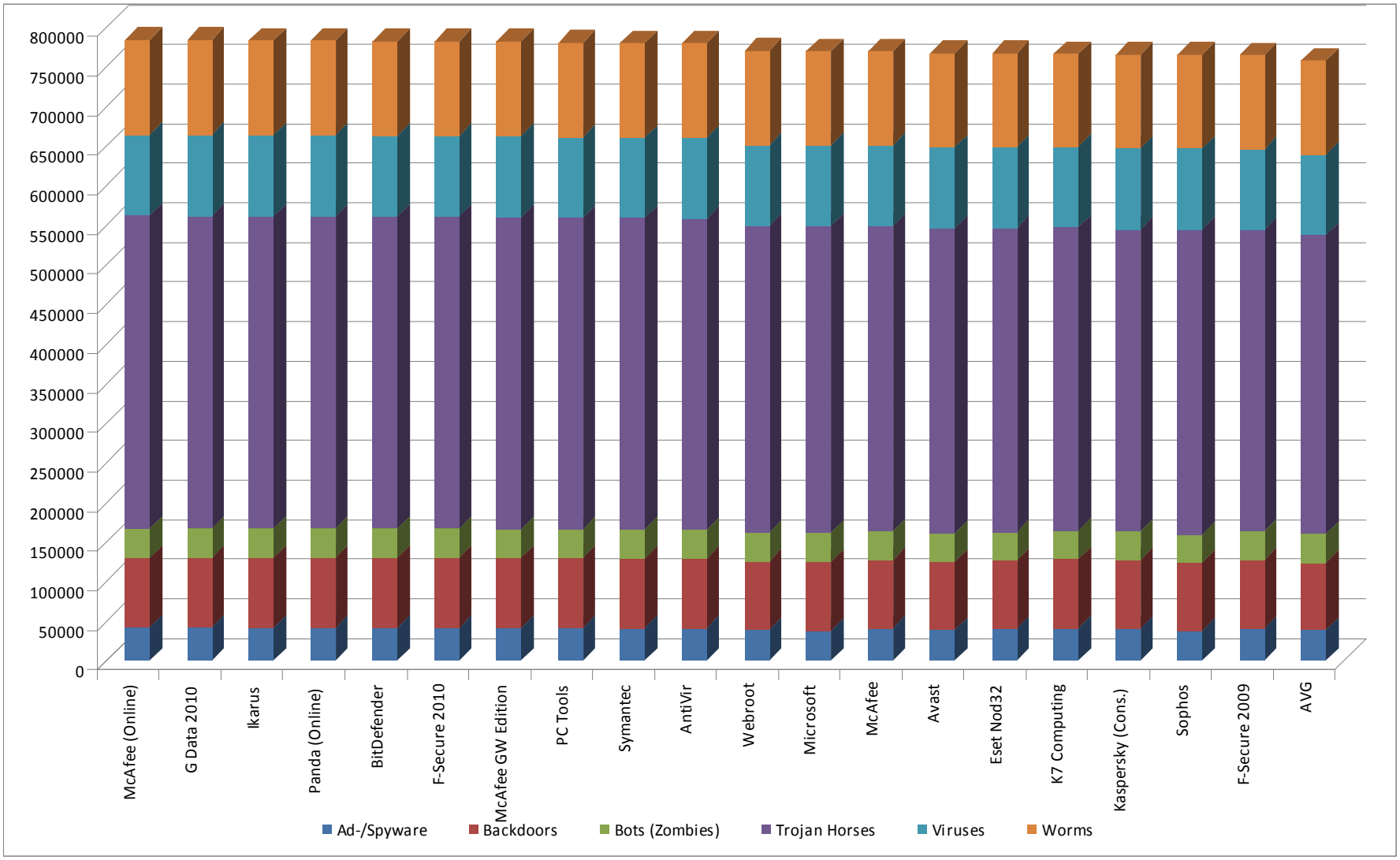
Testing Experiences



Testing experiences

- The cloud is slow
  - Providing signatures through the cloud, doesn‘t mean the user is always instantly protected
  - The signature itself still has to come from somewhere, the cloud doesn‘t solve this problem
  - Sometimes the cloud is even slower than BETA or emergency updates of the same vendor
  - The cloud seems to be just another way of deploying updates, but not adding any additional security

A random example of many (FILE_X93f1.exe):

AntiVir: -
AVG: -
BitDefender: Trojan.Downloader.Bredolab.U
Fortinet: W32/Waledac.X.gen!tr
F-Secure: Trojan.Downloader.Bredolab.U
Kaspersky: Packed.Win32.Krap.w
McAfee: -
McAfee (BETA): Bredolab.gen.a (trojan)
McAfee (Online): -
Microsoft: VirTool:Win32/Obfuscator.GO
Norman: W32/Obfuscated.D2
Panda: -
Panda (BETA): -
Panda (Online): -
Sophos: Mal/Bredo-A
Symantec: -
Symantec (BETA): Packed.Generic.243
Trend Micro: TROJ_BREDOLAB.J

Testing Experiences

- The cloud is slow
  - Special test (2009-09-07 to 2009-09-18) performed for this presentation:
    - There were several samples that were only detected after 10 days after we first saw them by the inspected in-the-cloud products
    - There were samples that were never detected during our test
    - There were samples that were detected by other vendors with generic signatures or heuristics way before a cloud detection was available

Testing Experiences

- The cloud is unreliable
  - Reviewed during our test for this presentation and basing on earlier experiences
  - We have seen system outages, both due to a lagging internet connection (our fault, the vendors fault?) as well as failing servers on the vendors side
  - Detections fluctuate and when you have bad luck, you are unprotected for a while
  - Cloud detections are changed (or additionally added) to local signature detections. Are vendors not sure whether to trust their own cloud?

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Testing Experiences

- Sample: 0a9a343e3d19ca7e2d9e3ac34623568c
- First seen at AV-Test: 2009-09-09

Date-Time	Product A	Product B
20090909-181853	-	suspicious
20090909-221853	-	suspicious
20090910-021853	-	-
20090910-061853	-	-
20090910-101853	-	-
20090910-141853	-	-
20090910-181853	-	-
20090910-221853	-	Trj/CI.A

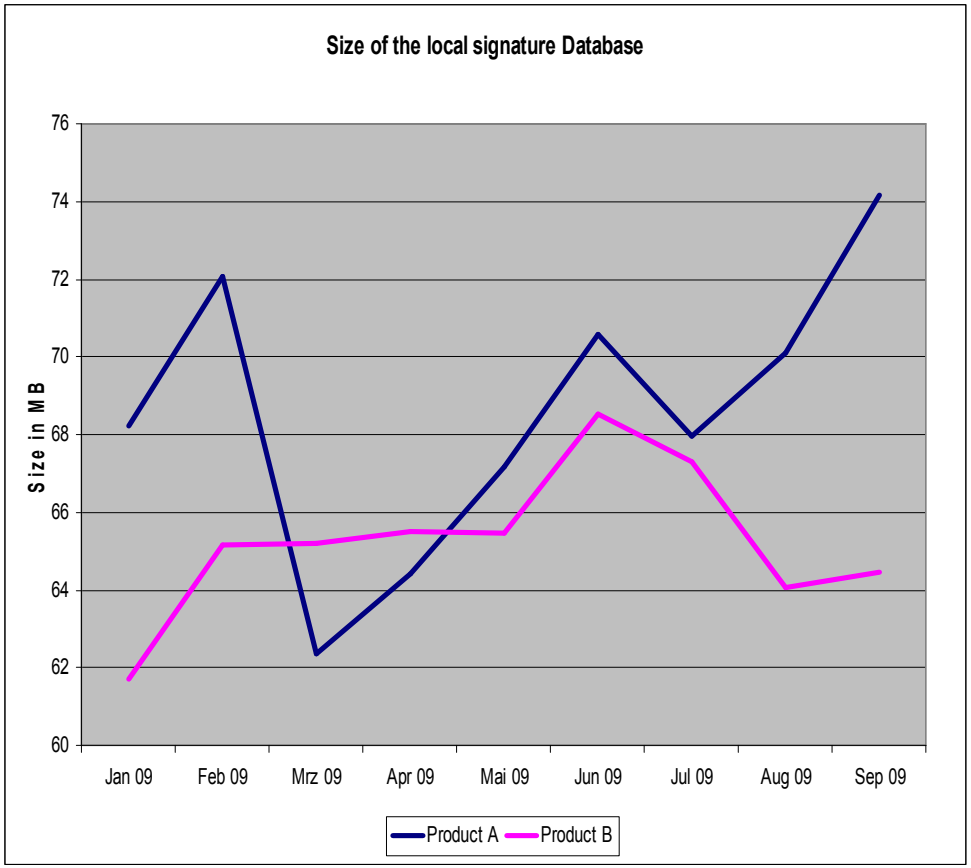
Testing Experiences

- Sample: 16c6a9860277a639f97cc21e3a59722c
- First seen at AV-Test: 2009-08-31

Date-Time	Product A	Product B
20090907-160354	BackDoor-EEC (trojan)	Trj/CI.A
20090907-200354	BackDoor-EEC (trojan)	Trj/CI.A
20090908-000354	BackDoor-EEC (trojan)	Trj/Downloader.MDW
20090908-040354	BackDoor-EEC (trojan)	Trj/Downloader.MDW
20090908-080354	BackDoor-EEC (trojan)	Trj/Downloader.MDW

Testing Experiences

- The cloud is getting bigger, the local databases too?
- As in-the-cloud queries are (often) only a supplement to the traditional technologies, the local databases don‘t shrink (that much)



Conclusion

- We looked at in-the-cloud technologies from a static detection point of view
- We didn‘t cover:
  - False positive issues
  - Performance impact
  - Attacks to the approach
- We primarily listed the bad things

Conclusion

- In-the-cloud scanning is helping the vendors to get their static detections rate up
- With reputation systems and further statistical analysis, those approaches can help even further in detection malware
- But: In-the-cloud scanning is still only a part of a whole security infrastructure
- Products that use in-the-cloud approaches are not necessarily better then other products, but they are often better than before (when they didn‘t have the cloud)

Conclusion

- All in all:
  - In-the-cloud scanning can be a valuable addition to security software
  - But the cloud itself is not the solution
    - Static scanning doesn‘t care where the signatures come from
    - Heuristics also work without the cloud
    - Behavior-based systems don‘t rely on the cloud either

Question & Answers

Thank you very much for your attention!

Are there any questions?

Note: Many testing papers can be found at:
http://www.av-test.org →Publications →Papers