Malware-Erkennung 2015

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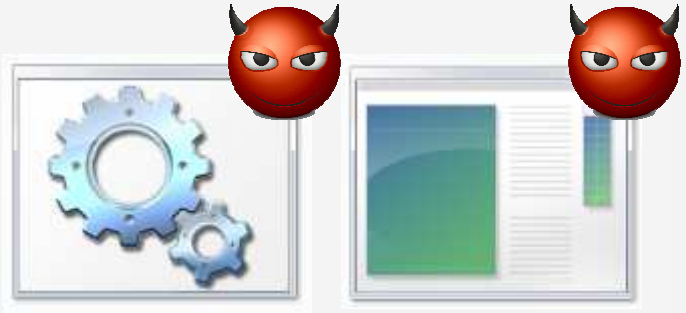
Avira Operations GmbH
02.06.2015

Inhaltsverzeichnis

Wie baue ich eine KI, die Malware erkennt?

Word.exe
(Size: 0.8MB)

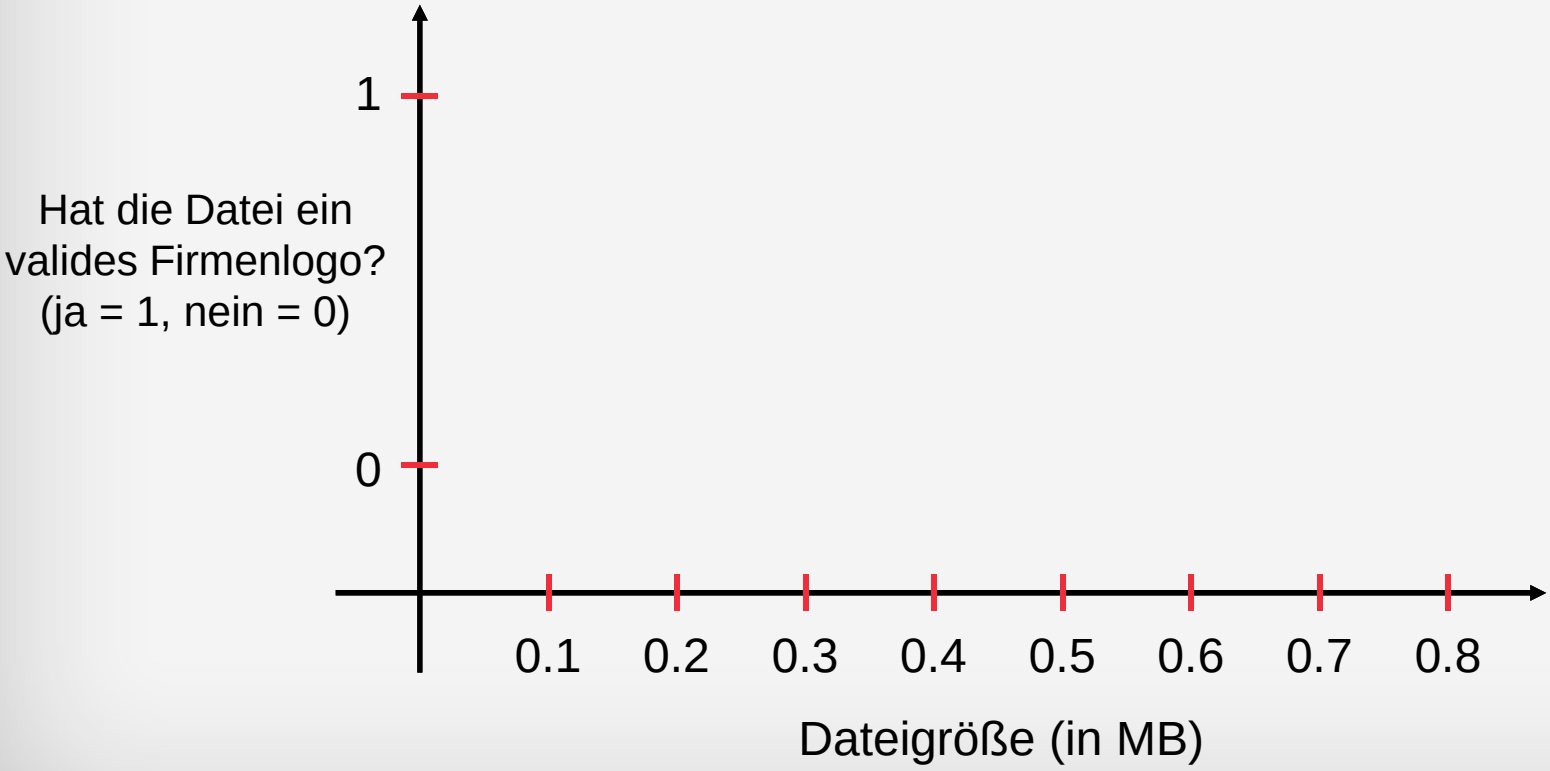
Acrobat.exe
(Size: 0.3MB)



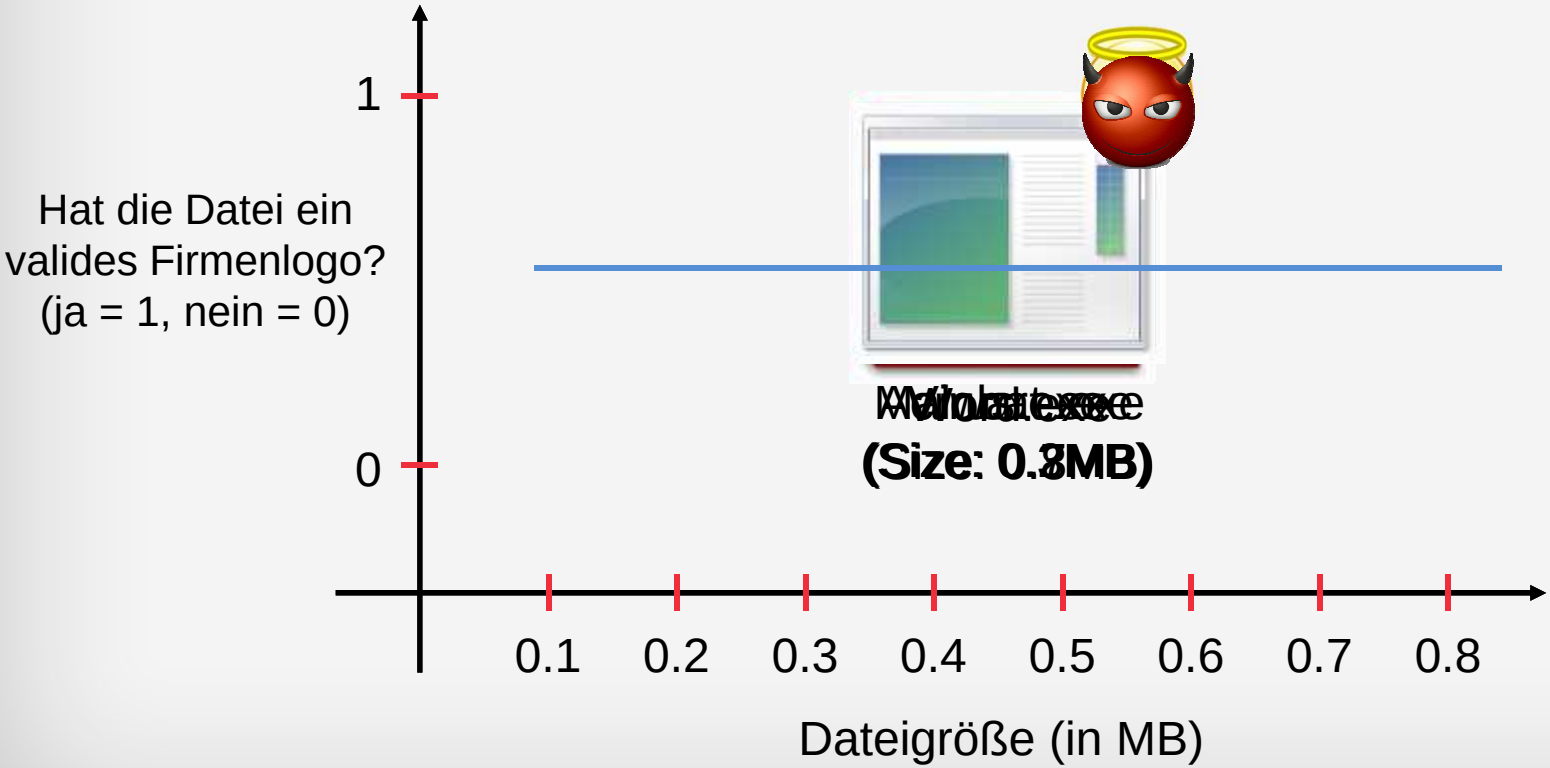
Virus.exe
(Size: 0.2MB)

Malware.exe
(Size: 0.7MB)

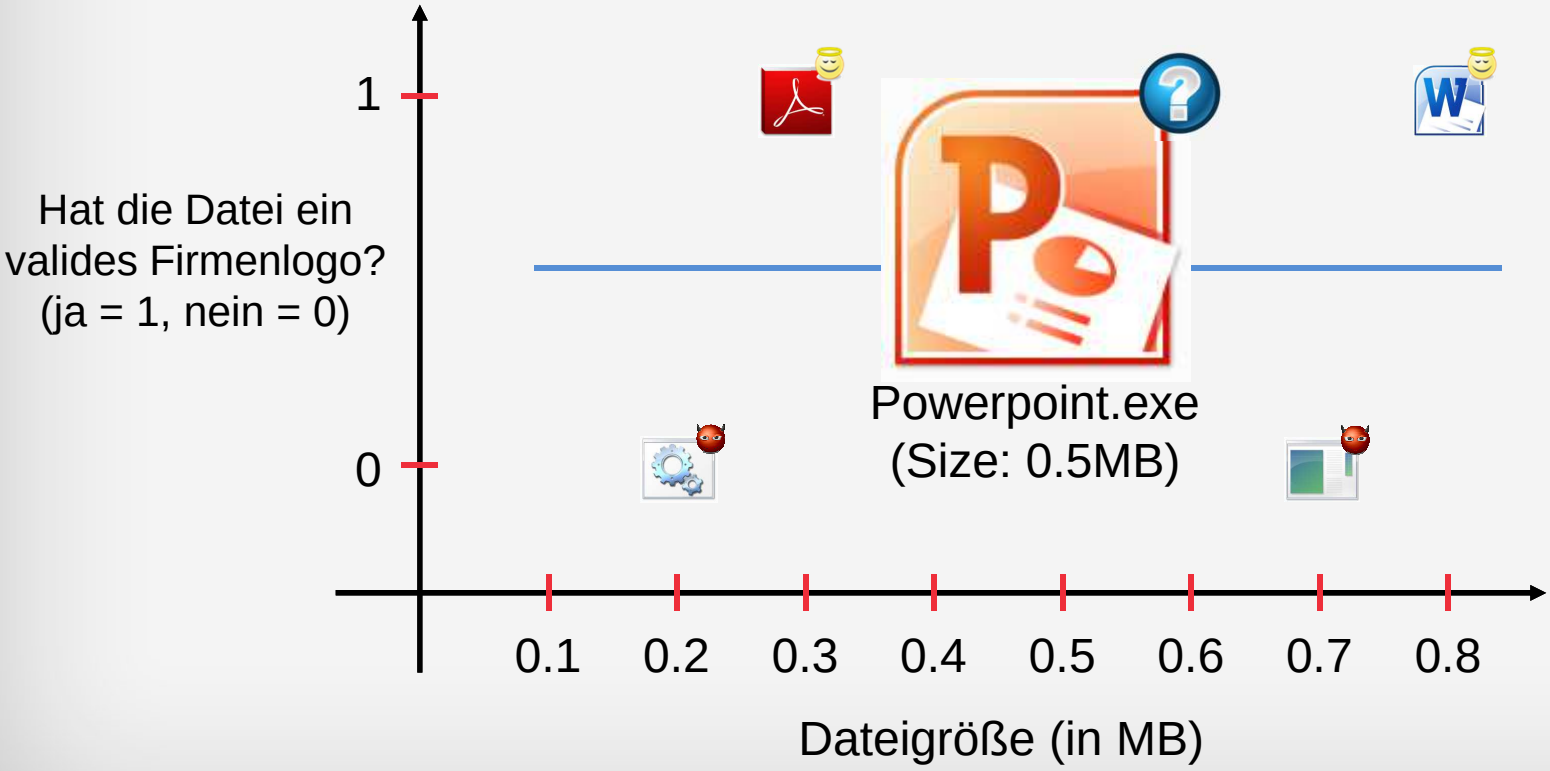
Wie baue ich eine KI, die Malware erkennt?

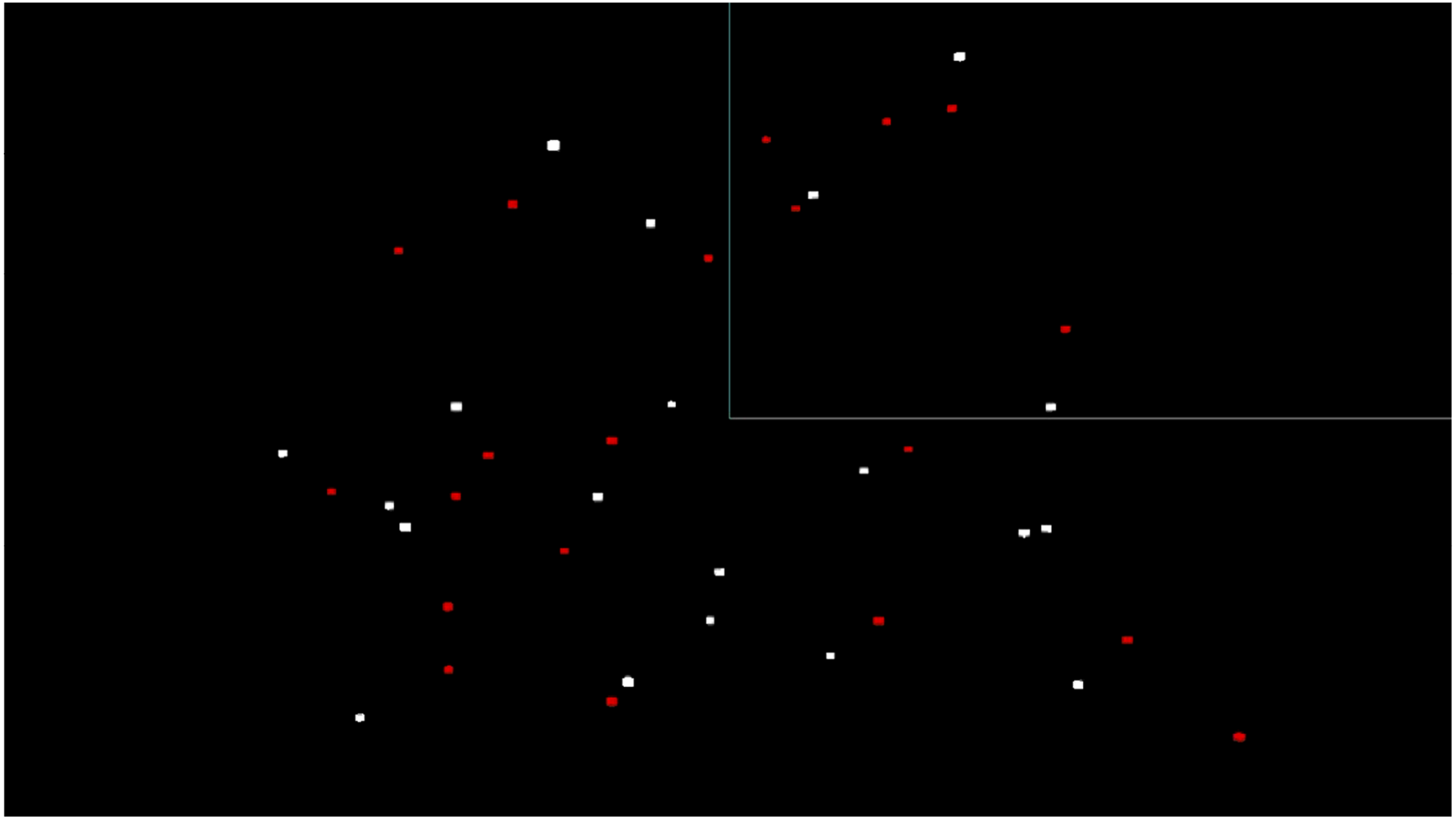


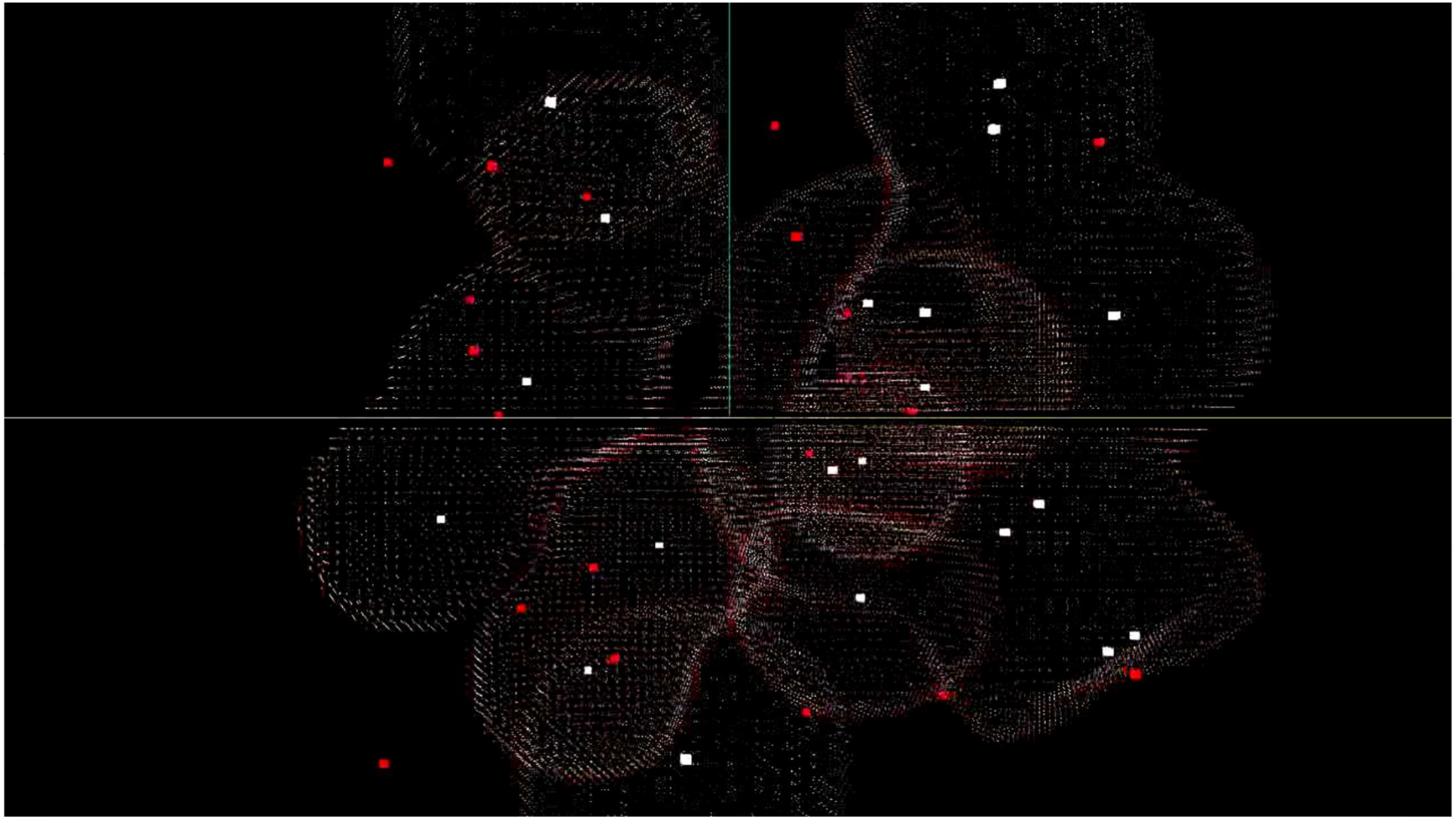
Wie baue ich eine KI, die Malware erkennt?



Wie baue ich eine KI, die Malware erkennt?

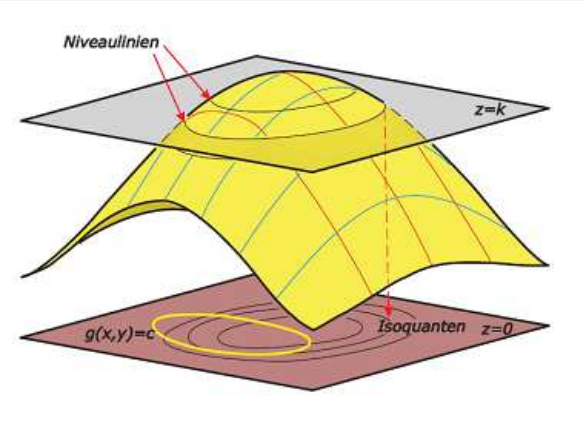






Komplexität die Hyperebene zu finden

$$\min_{\mathbf{w},\xi,b}\max_{\alpha,\beta}\left\{\frac{1}{2}\|\mathbf{w}\|^2 - C\sum_{i=1}^{n}\xi_i - \sum_{i=1}^{n}\alpha_i[y_i(\mathbf{w}\cdot\mathbf{x_i} - b) - 1 + \xi_i] - \sum_{i=1}^{n}\beta_i\xi_i\right\}$$

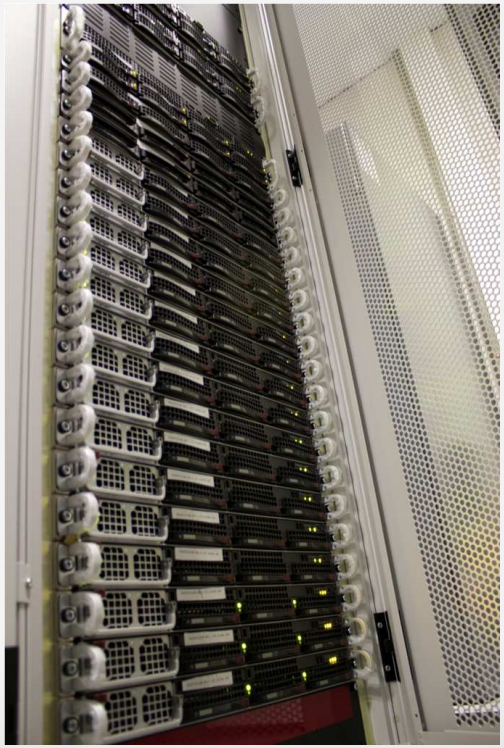


$$f(\mathbf{x}) = \mathrm{sgn}(\langle\mathbf{w},\mathbf{x}\rangle + \mathbf{b}) = \mathrm{sgn}\left(\sum_{i=1}^{m}\alpha_i y_i\langle\mathbf{x_i},\mathbf{x}\rangle + \mathbf{b}\right)$$

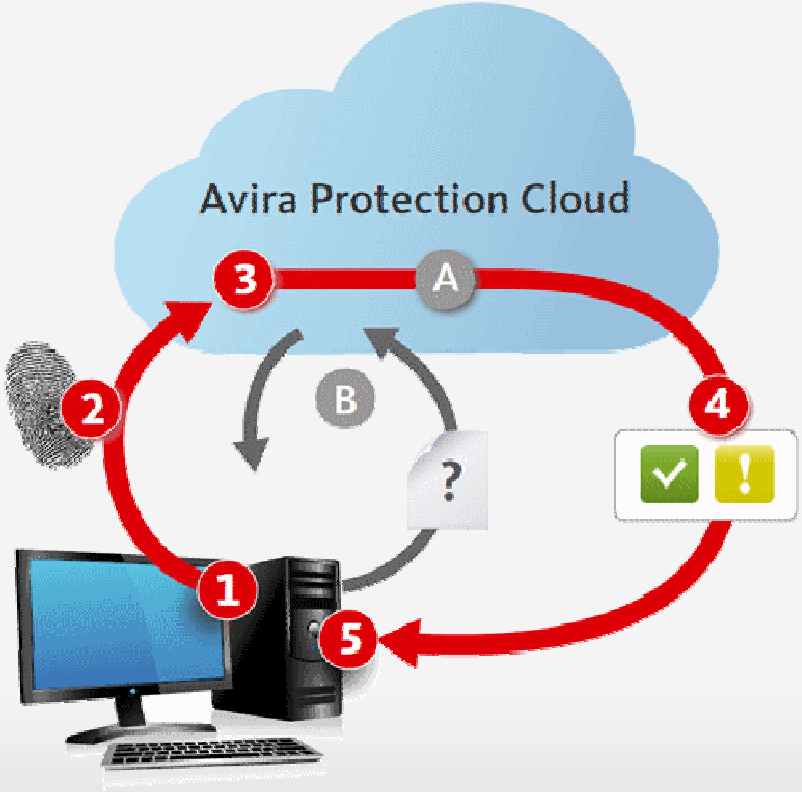
Komplexität die Hyperebene zu finden

- > 7000 Dimensionen (Im Beispiel waren es zwei)
- > 100 Millionen Dateien (Im Beispiel waren es vier)

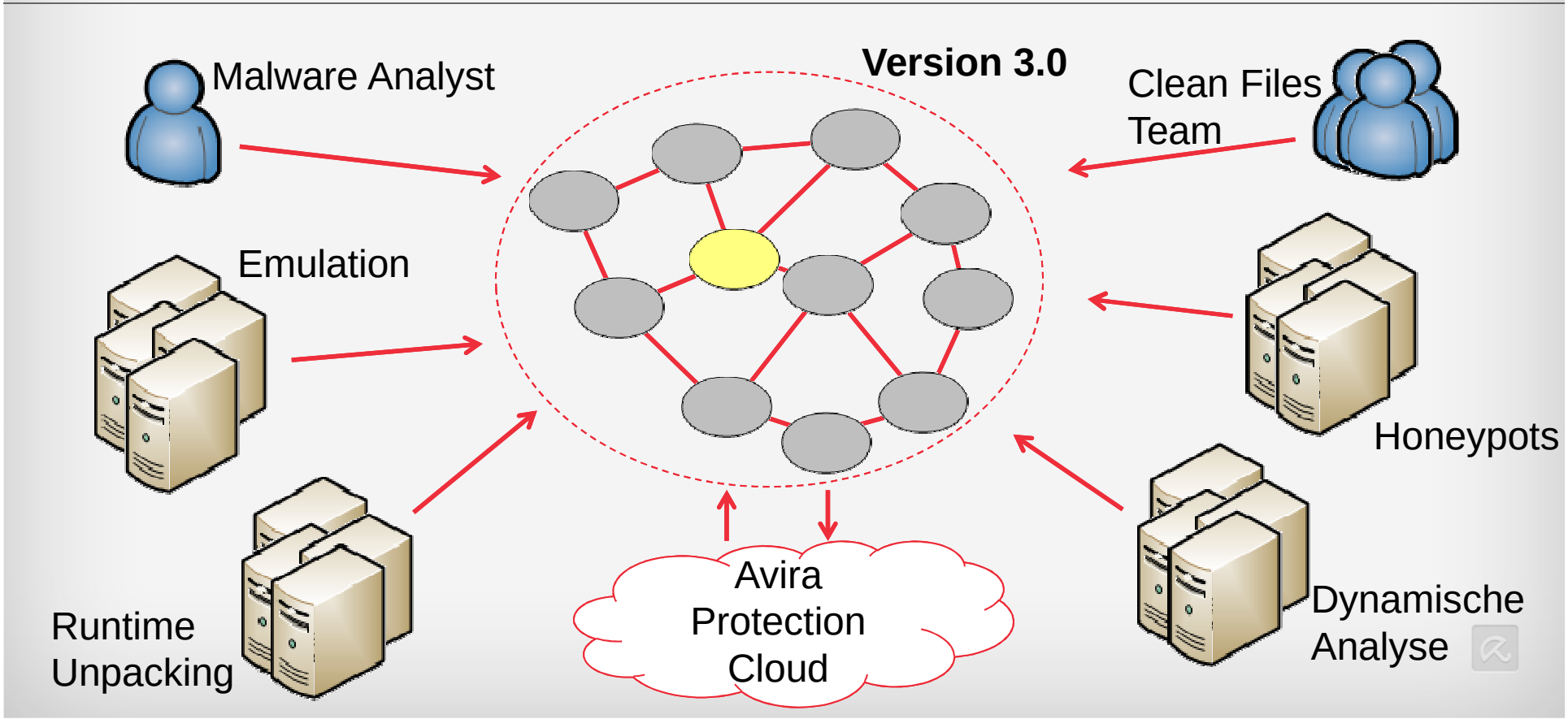
Berechnungszeit der KI (Version 1.0)	
Mit Open-Source Tools	Mit hochoptimiertem CUDA Code
1 PC, mehrere Jahre	16 Server, 1 Tag



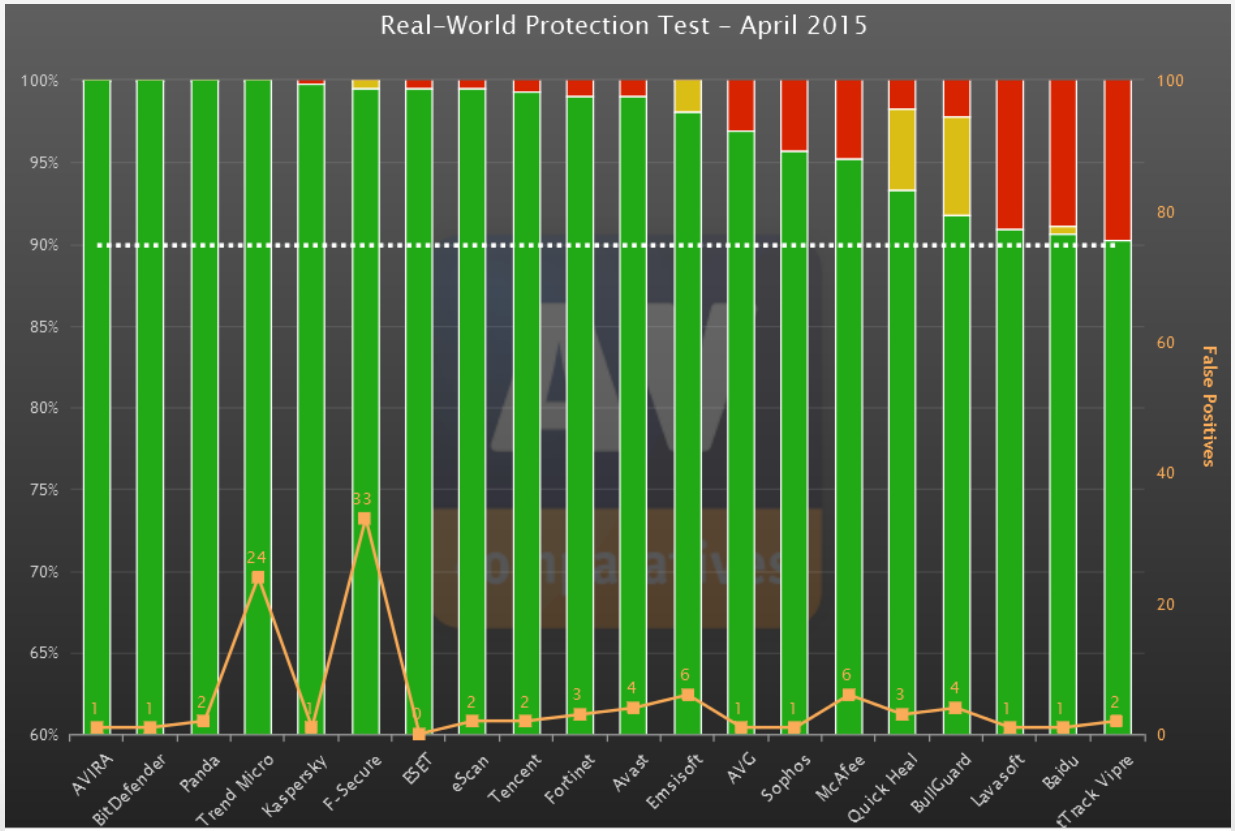
Avira Protection Cloud



Die Rolle der KI innerhalb von Avira



Evaluation der Cloud und der KI



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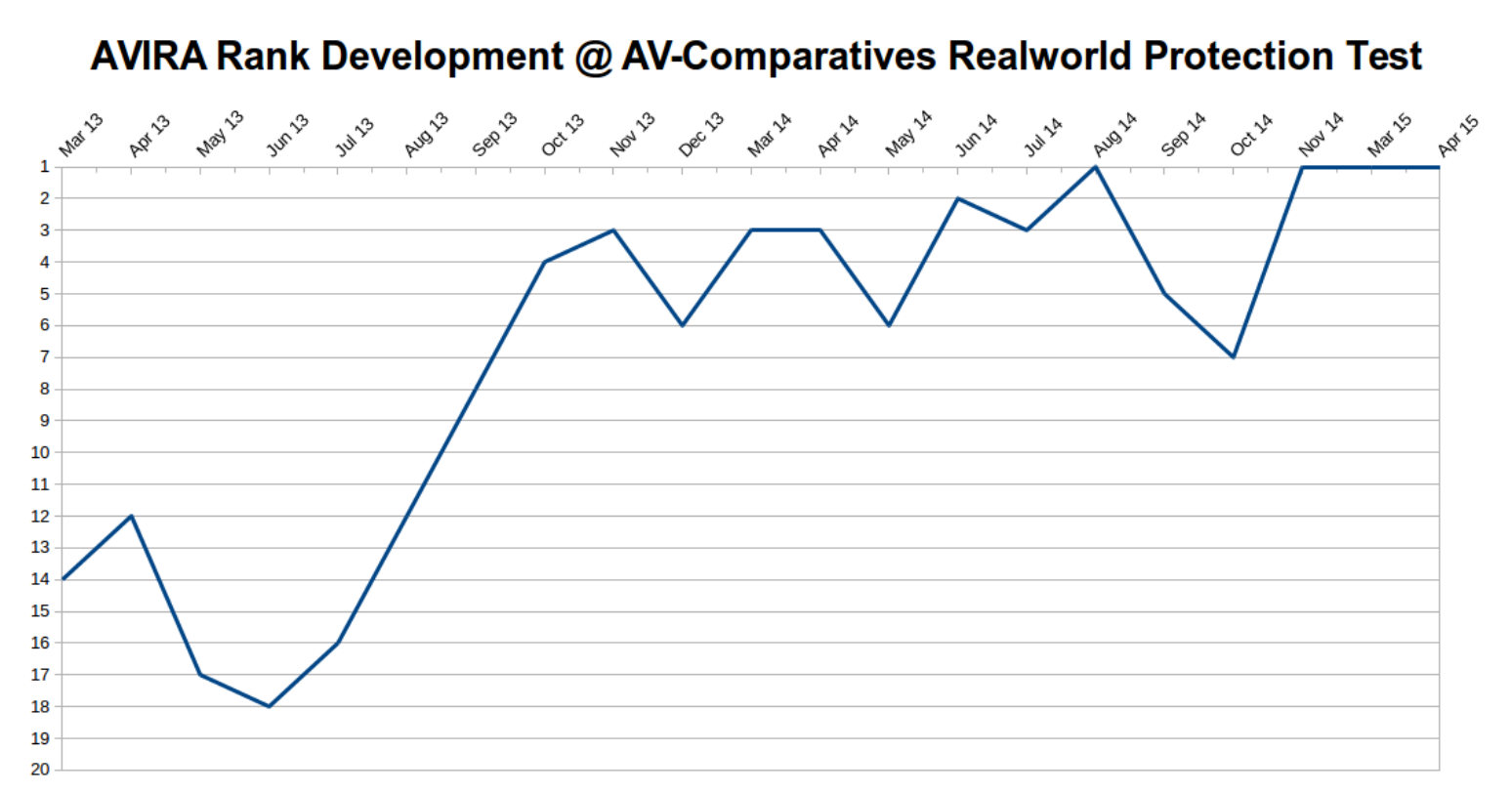
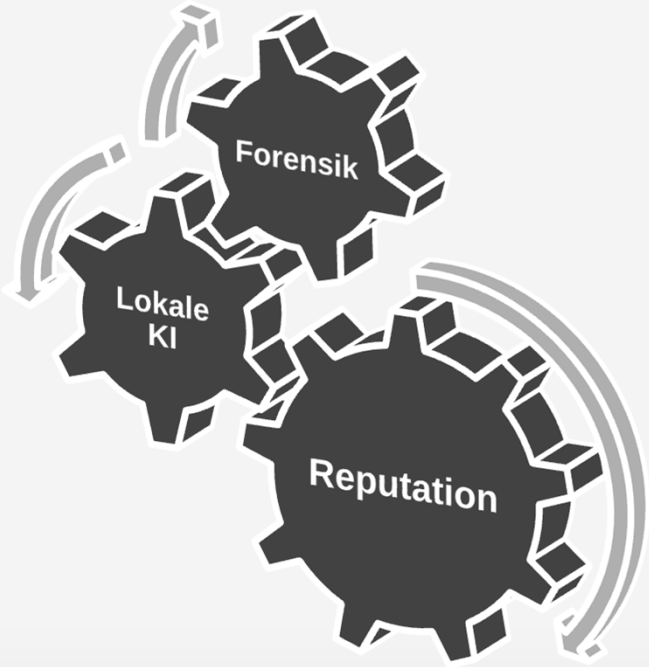
Evaluation der Cloud und der KI



Ausblick



Statistiken: Blockierte Bedrohungen

Blockierte Bedrohungen
(Millionen / Tag)
Windows