



We understand!

Tomorrow's Communication.

Today!



*„Die Maschine soll
endlich den Menschen
verstehen. Nicht
umgekehrt.
Wir arbeiten daran.“*

(Lars Stevenson, HMI Gründer & Geschäftsführer)

Introducing HMI GmbH, Heidelberg, GER



- Startup, founded 2008 in Heidelberg, Germany
- Today: 34 Employees (approx. 40% Development)
- Main Focus on
 - Natural Language Understanding.
 - Contextual understanding of digital documents.
 - Artificial Intelligence (ANN, Genetic Algorithms).



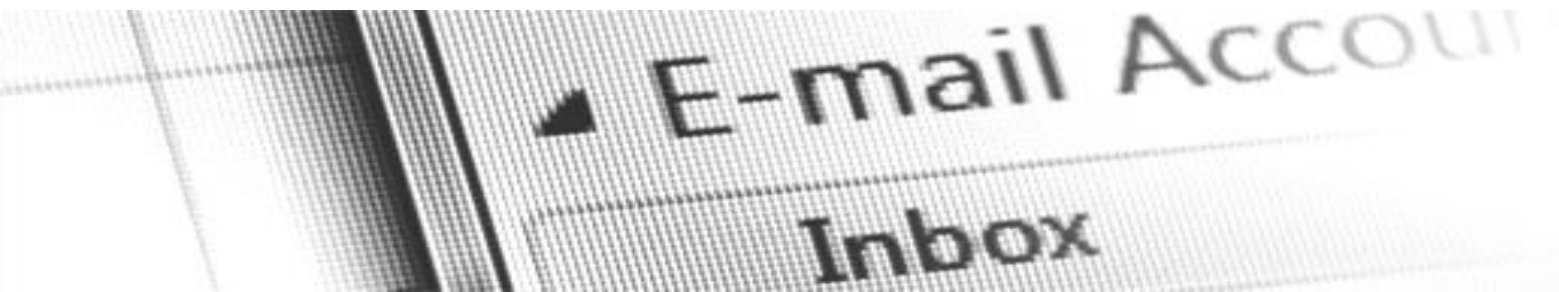
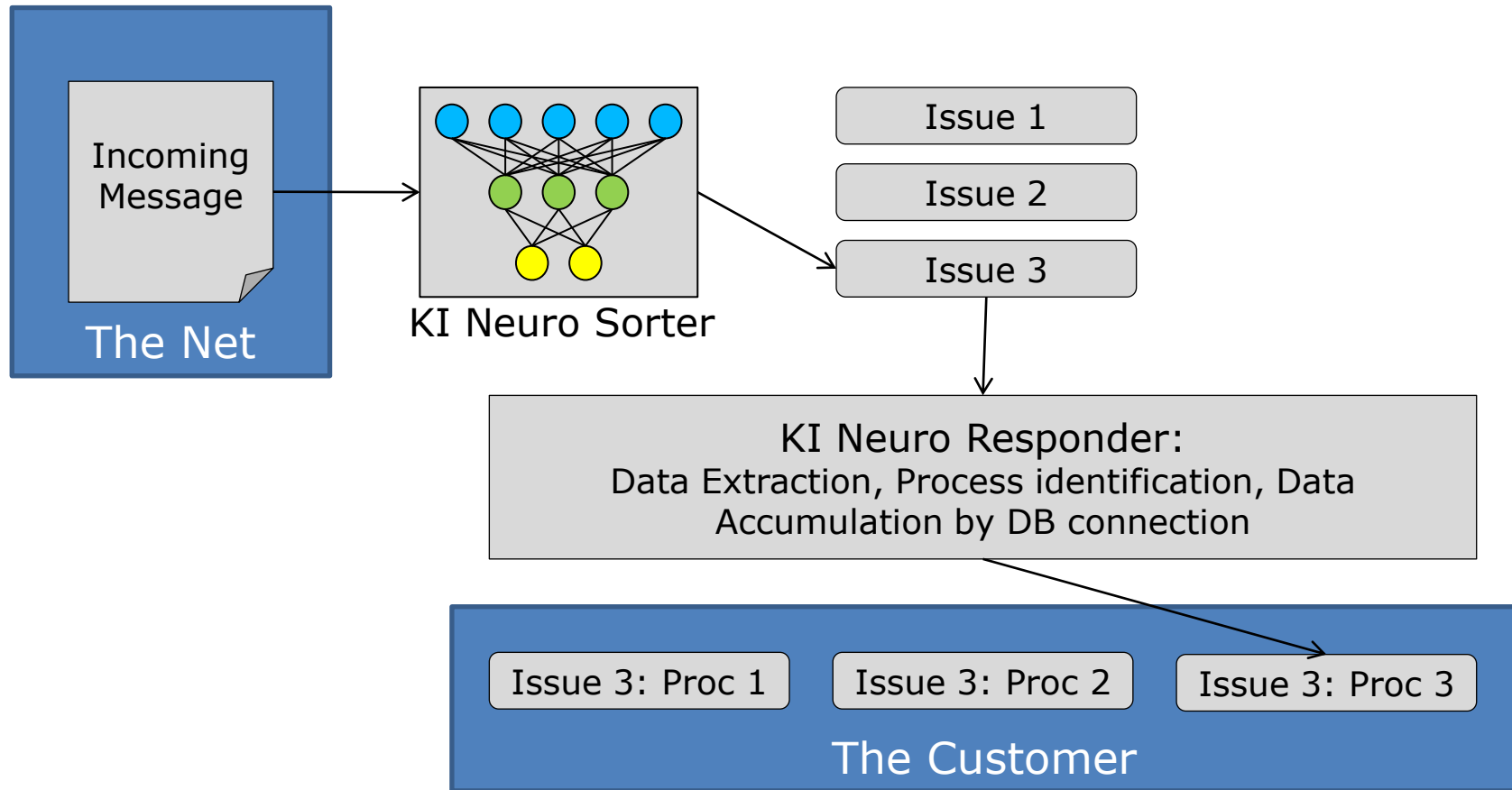
Businesscase 1: Artificial Neural Networks

Our Product Smart Communication Manager is a software system of two main modules

- KI-Neuro Sorter: Is able to qualify any incoming digital document as e-mail, SMS, chat, text, etc. into groups
- KI-Neuro Responder: Is a process handler, connecting sorted incoming documents with internal business processes

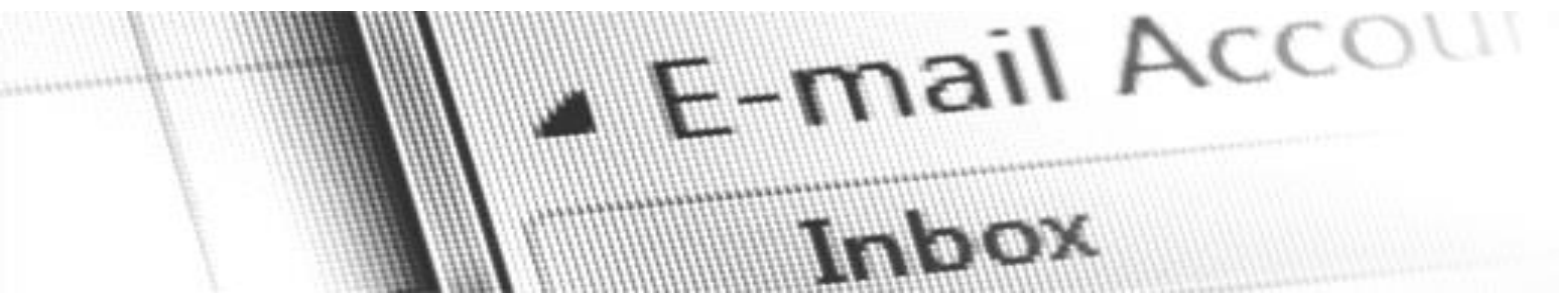


Example of Businesscase 1



Why do we need HPC in Businesscase 1?

- Calculating ANNs for the KI-Neuro Sorter is very time consuming. One net takes up to 10 minutes and we want to calculate 10.000 hours within 7 days. Although we optimized the code by factor 250 during the last weeks, we need more power.
- Genetic Algorithms take additional 42.000 hours of computing time per week to optimize the parameters of the customer's system.



HPC as competition advantage

- We can deliver much quicker, since computing takes quite long for an acceptable start setup
- We can help customers to train faster and get sooner better results
- We can work on the “big” problems, where other companies have to stay away from

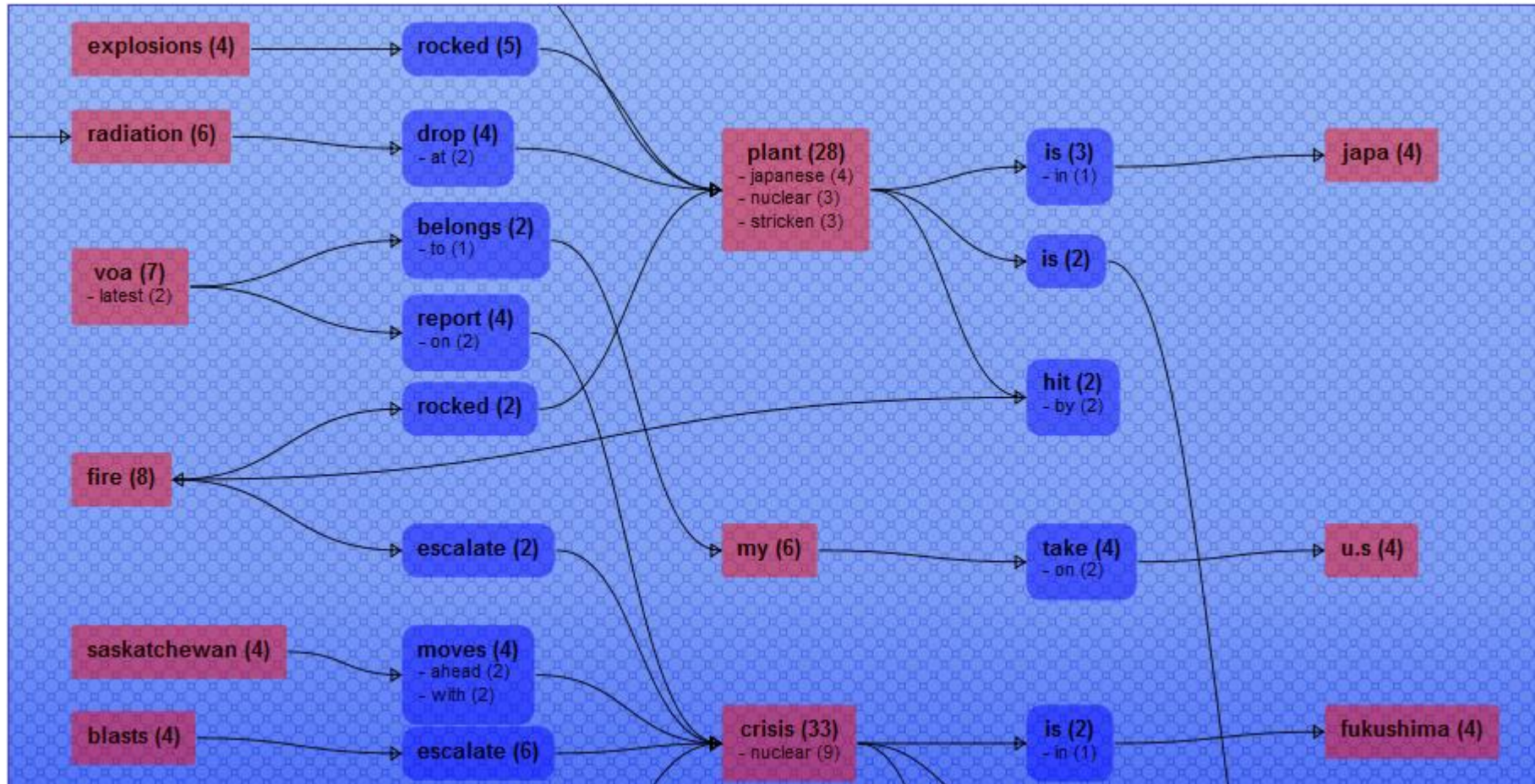


Businesscase 2: Web@nalyzer

- The We@nalyzer is a tool to extract complex information out of social media networks, RSS feeds or blogs.
- We extract user-relations to identify the opinion-makers
- We extract semantic based information (no keywords!) and combine them to expression relations
- We combine user relations and expression relations to weighted information cloud



Example of Businesscase 2



Why do we need HPC in Businesscase 2?

- Calculation relations is very time consuming
- Amount of data is huge (the web)
- Problem is highly scalable
- Customers wants "online results", so we need a highly parallel environment to work on multiple requests
- We are following a cloud computing approach, to use best fitting resources for the different background tasks



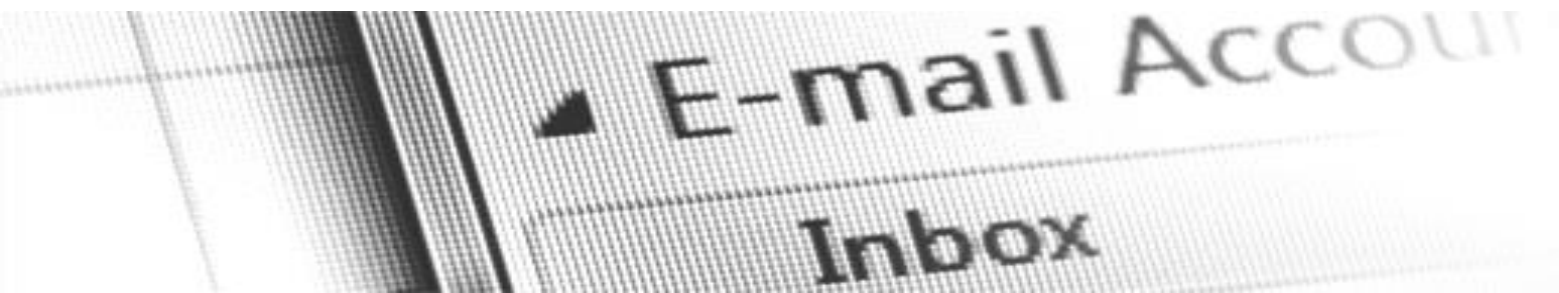
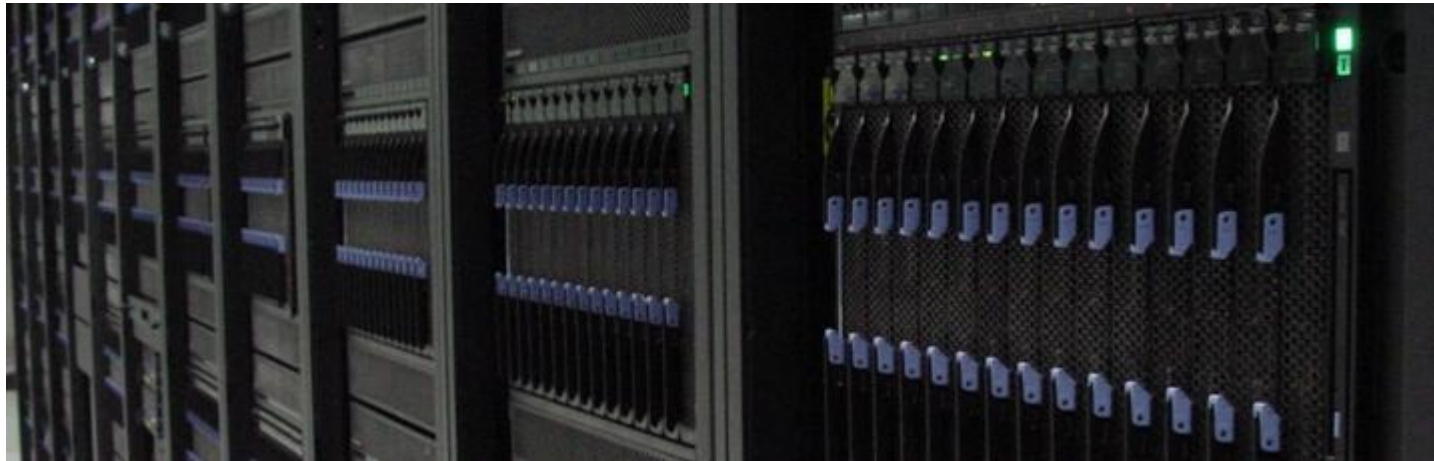
What we have at our Headquarter

- We run an office cluster with all available machines like SETI@home
- We just installed a 256 core cluster:
 - 16x Dual Opteron 6128, 8c
 - 16 GB in 8x2 GB Moduls each
 - Connected by gigabit ethernet



What we use as external resources

- We cooperate with the HLRS Computing Center in Stuttgart, Germany
- We calculate on the HLRS GRID Cluster (46 Tflops)
- We use that machine mainly for research



Our goals on HPC

- Enlarge research CPU capacity by factor 100
- Calculate 100x the customer data we do today (~5.000.000 calculation hours) in a week
- Doing web@nalyser runs in “real time”. At the moment, we need some hours to calculate the results from only some sources of the web.
- Setting up HPC-Cloud services for our customers (e.g. calculating genetic algorithms or nets online)



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*„Was wir brauchen
sind Produkte,
die völlig normal
auf ganz normale
Sätze reagieren.“*

(Stefan Dienst, Entwickler bei HMI)