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**Flexible and collaborative data and visualization environments**

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Complex tasks, such as the analysis of security-critical events, call for interdisciplinary cooperation. But the coordination of multiple, geographically dispersed contributors can often be time-consuming and challenging. The many status meetings this requires can be made more efficient by means of visual analytics. Our prototype illustrates how collaborative scenarios of this kind could be streamlined in the future.

In particular, we show how

- the flexible design of data processing can be harnessed to enable explorative data analytics,
- it is possible to implement an iterative process, beginning with a rough sketch and culminating in a working data management process,
- it is possible to support coordination between multiple participants on the basis of real-time collaboration for the purposes of data analytics.

## WHAT WE OFFER YOU

Our team has proven expertise in the performance of studies and the execution of consulting and development projects in the cybersecurity space. We create visualization solutions tailored to your specific needs, data and tasks. We combine our skills in applied research with the principles of user-centered design. Contact us to learn more.

**FRAUNHOFER IGD: THE INTERNATIONAL LEADING INSTITUTE FOR APPLIED RESEARCH IN VISUAL COMPUTING**

## CONTACT:

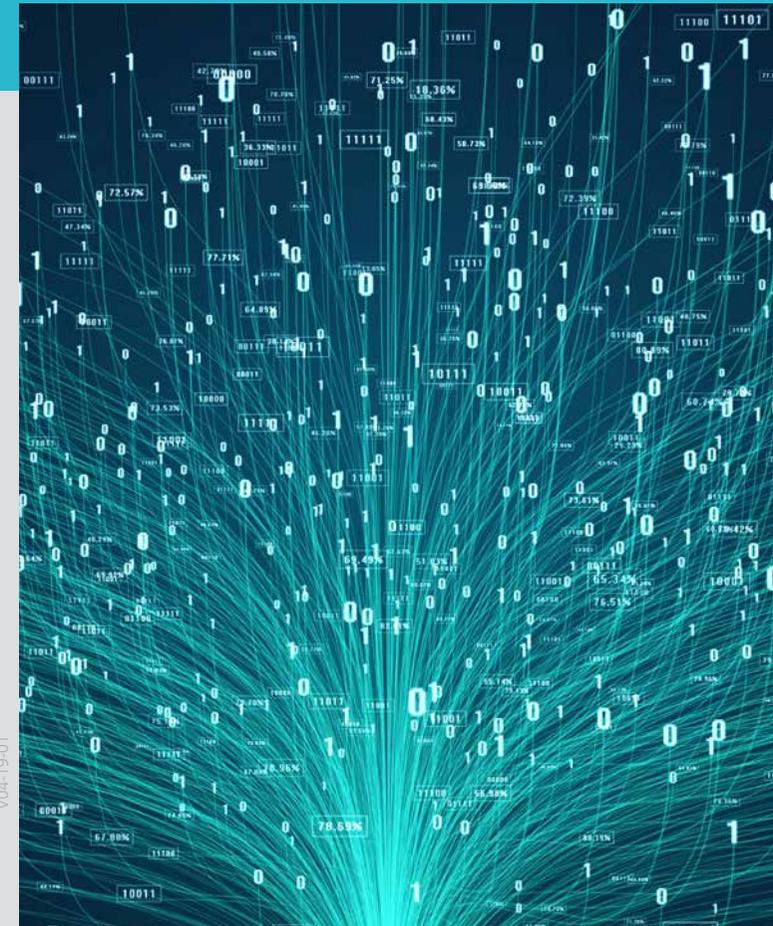
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# VISUAL ANALYTICS FOR CYBERSECURITY



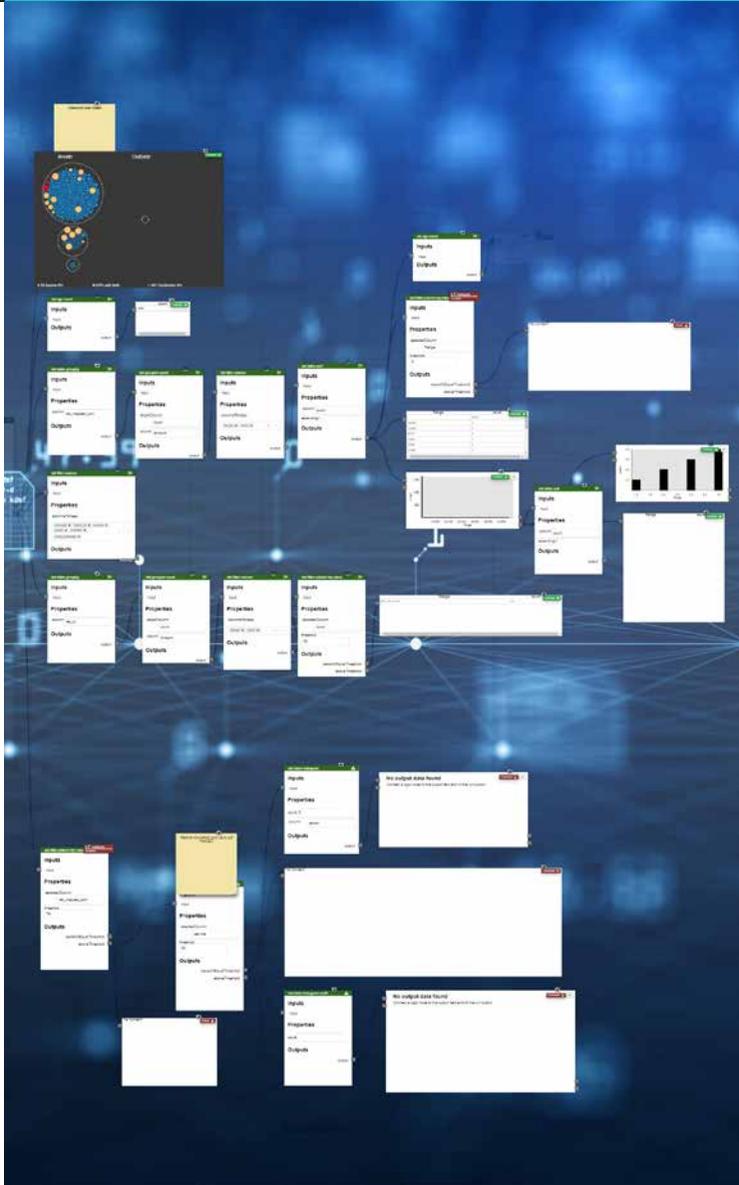


Cyberattacks typically target weaknesses within the Internet, causing disruptions to the reliable operation and endangering the integrity of corresponding services and organizations. **Interactive forensic** plays a key role when analyzing new, unknown vulnerabilities. This requires large volumes of data to be processed and visualized. In this context, visual analytics methods have proven effective as they combine **automatic data analytics** algorithms with new visualization methods to allow experts to interact with these data.

### National Research Center for Applied Cybersecurity

Fraunhofer IGD is part of the National Research Center for Applied Cybersecurity (CRISP) in Darmstadt and develops solutions, strategies and technologies for the **visualization** of data of relevance to cybersecurity decision-making. Within the scope of these activities, the Competence Center for Information Visualization and Visual Analytics focuses on the following:

- Visual-interactive analysis of local network traffic
- Visualization of global geo-IP changes
- Flexible and collaborative data and visualization environments



### Visual-interactive analysis of local network traffic

The analysis of network traffic is not only of interest to experts. There are a large number of Internet-enabled appliances in private households or smaller networks – but it is difficult to identify which of them are establishing connections to external services. Our prototype enables users to perform interactive visual analysis on router data in precisely the same way a malware expert would do on PCAP data in a sandbox.

Try it out for yourself at:  
<https://netcapvis.igd.fraunhofer.de>

### Visualization of global geo-IP changes

When assessing network connections it can be useful to leverage geographic information. Currently, there are only online services that indicate the current location for a specific IP address. Our prototype makes it possible to identify past locations. Moreover, a global view highlights IP addresses that frequently switch owner or position.

Our web prototype is accessible at:  
<https://crisp.igd.fraunhofer.de>