**Real-world application for both parallel computing and networked systems.**

**Real-World Application of Parallel Computing: Weather Forecasting**

**How It's Used:** Weather forecasting relies heavily on parallel computing to handle the vast amounts of data and complex calculations required to predict weather patterns. Numerical weather prediction (NWP) models use mathematical models of the atmosphere and oceans to predict the weather based on current weather conditions. These models require processing large datasets from satellites, weather stations, and other sources.

**Why It's Important:**

1. **Speed:** Parallel computing allows weather models to be computed much faster by dividing the workload among multiple processors. This speed is crucial for timely weather predictions.
2. **Accuracy:** With the ability to process more data in a shorter time, parallel computing enhances the accuracy of weather forecasts. More data and more detailed models lead to better predictions.
3. **Handling Complexity:** Weather systems are inherently complex, involving numerous variables like temperature, humidity, wind speed, and atmospheric pressure. Parallel computing can handle this complexity by running multiple calculations simultaneously.

**Real-World Application of Networked Systems: Online Banking**

**How It's Used:** Online banking utilizes networked systems to provide customers with real-time access to their financial information and allow them to perform transactions over the internet. These systems involve a network of secure servers, databases, and client devices (e.g., computers, smartphones).

**Why It's Important:**

1. **Accessibility:** Networked systems enable customers to access their bank accounts and conduct transactions from anywhere in the world, at any time. This convenience is a significant advantage over traditional banking.
2. **Security:** Secure network protocols and encryption are essential in protecting sensitive financial data. Networked systems implement various security measures like two-factor authentication, secure sockets layer (SSL) encryption, and real-time monitoring to prevent fraud and unauthorized access.
3. **Efficiency:** Transactions can be processed quickly and efficiently over networked systems, reducing the need for physical bank visits and manual processing. This efficiency benefits both the bank and its customers by saving time and resources.