How BKM Improved Service Level Delivery through End-to-End Transaction Visibility

Bankalararası Kart Merkezi — Interbank Card Center (BKM) is a centralized card payments processor for all of the issuing and acquiring institutions in Turkey. Established in 1990 as the national Switch for Turkey, the Company provides strategic card payment systems and services for its 33 Members throughout the country, helping to oversee the development of rules and standards for domestic credit, debit and prepaid cards.

BKM currently validates and clears close to 10 million transactions per day, routing through a number of different payment gateways. These include interbank transactions taking place between the various domestic member institutions, as well as MasterCard, Visa, Amex, UnionPay, Discover Financial Services and JCB. Investment in solid technical hardware, infrastructure and human resources, combined with innovative solutions such as **INETCO Insight®**, have resulted in BKM being viewed as a respected model processor throughout the world.

BKM currently uses INETCO Insight to monitor end-to-end transactions taking place between both customized domestic interfaces and standardized payment gateways, including:

- Domestic Members to Domestic Members
- Domestic Members to MasterCard
- Domestic Members to Visa
- Domestic Members to Amex
- Domestic Members to UnionPay
- Domestic Members to Discover Financial Services
- Domestic Members to JCB

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The Challenge

BKM remains strongly committed to providing the best service level delivery possible to its domestic institution members, the retail industry and their cardholders. But more digital channels and payment gateways, new customer demands, and an average 10-15% increase in transaction volumes per year meant that BKM needed to significantly change the way they managed and responded to performance issues within their service environments.

While BKM had the ability to partially monitor internal Switch application messages from database log tables, it was challenging to easily analyze these in relation to the external formats of transaction messages. The Switch application's existing debug system was not user friendly. This meant that if a transaction issue occurred either before it made it to the Switch or after it left the Switch, it was difficult to detect and isolate the root cause of these issues in a timely, cost effective manner.

Knowing that undetected transaction failures and slowdowns have a negative impact on both BKM's service level delivery as well as their member institutions' end customers, BKM turned their focus on establishing end-to-end visibility into the lifecycle of every transaction. They required the ability to correlate the incoming transaction response messages and outgoing messages together — to automatically create individual transaction profiles out of the Switch system that contained all the data field elements needed to quickly isolate where a performance issue was taking place. This needed to be done for both domestic ISO8583 messages and standard message types (including Visa VIP, MasterCard Banknet, UnionPay, Discover, JCB and Amex), while still applying masking logic that meets stringent PCI DSS security regulations.

BKM chose the INETCO Insight real-time transaction monitoring and data streaming solution for collecting, correlating and decoding all message data fields in every end-to-end transaction.
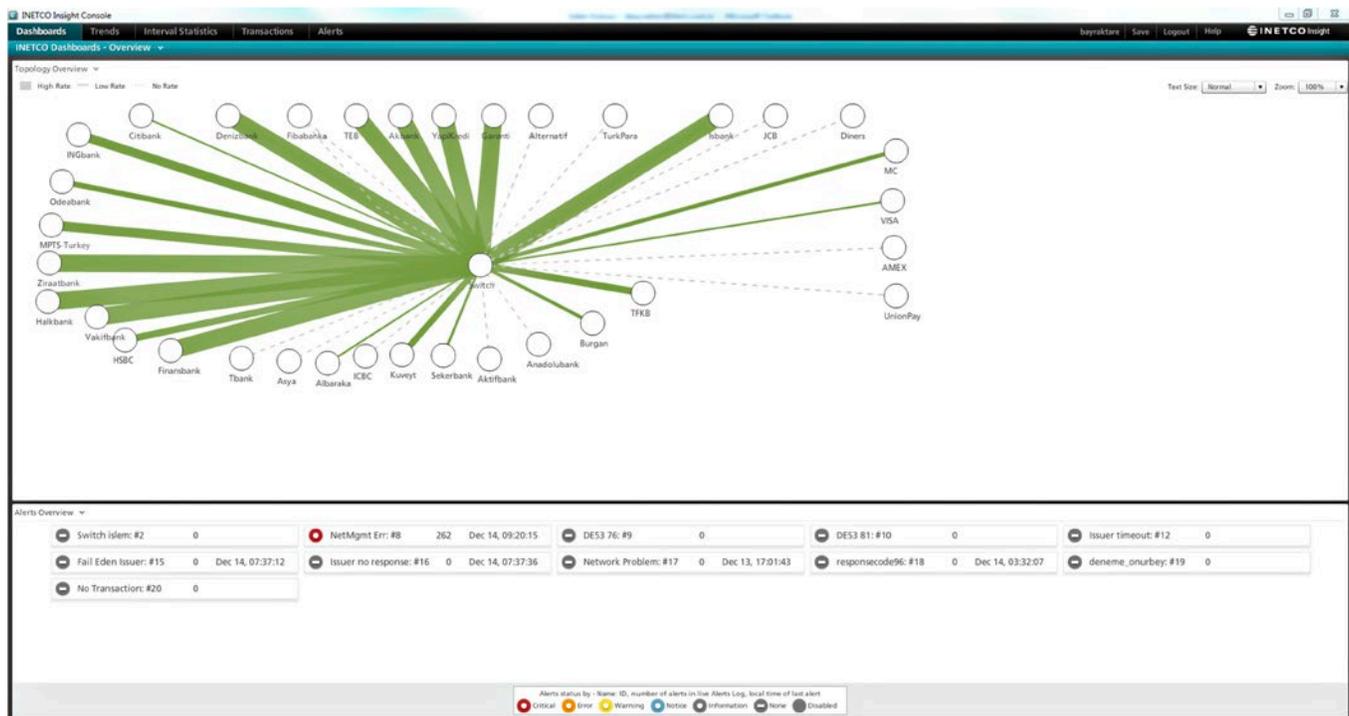
SCREENSHOT 1: **BKM's network mapping topology in INETCO Insight**

INETCO® Every transaction tells a story®
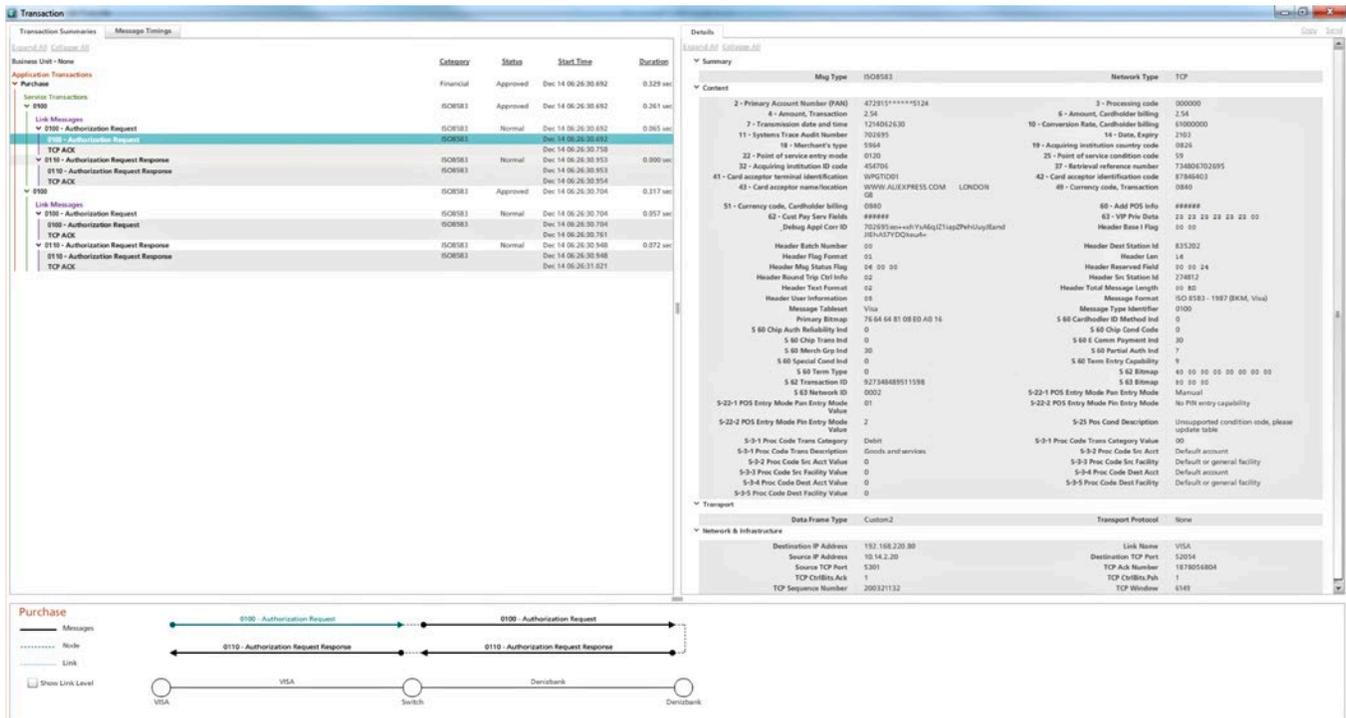
SCREENTSHOT 2: Request Message Sample from Visa VIP interface — Rich transaction profiles containing all transaction messages and timestamps make it easy for BKM to drill down and isolate the root cause of transaction performance issues, and prove findings to domestic members or payments systems.

The Solution

INETCO Insight gives BKM the power to investigate issues, transaction by transaction. The Company can now securely monitor all transaction message data details, TCP acknowledgments, TCP connect/disconnects, and the data element conversions between different formats and message flows — in one centralized view. This is being done utilizing a light weight method that involves mirroring network traffic through a SPAN port.

Network flow diagrams of transactions, time stamps and multi-hop correlation capabilities has helped BKM instantly see if their Switch has successfully completed a transaction, and sent the transaction on its correct routing. Customized real-time alerts also notify them of transaction abnormalities, such as:

- No transactions happening over a peak time period, or within a 20 second duration
- Key synchronization errors, such as a domestic member is declined at the key exchange message
- Timing message errors, response code errors and high volume of declines by card type

By profiling detailed application, network and response time information on every transaction in one view, INETCO Insight has helped BKM guarantee that member institutions will have minimal service level disruptions. If a domestic member claims they are not seeing a transaction that has been sent to them, BKM can identify where the bottleneck has occurred on the end-to-end path, and whether it is an issuer/acquirer connection issue, network routing error, Switch or host authorization issue.

The Solution (continued)

BKM is also forwarding rich transaction data to their data warehouse for deeper analysis and self investigation. Validation queries are run to double check captured records, identify decoding problems and understand any hidden errors in the transaction logs caused by the Switch or the member.

With INETCO Insight, BKM is no longer dependent on their member institutions to send samples of transaction messages when they are not completing as expected — the ability to holistically see traffic at the TCP/IP level, including the original incoming and outgoing data, results in faster engagement of the right resources who can immediately investigate the issue, and a reduction in average mean-time-to-repair from hours and days to a couple of minutes.
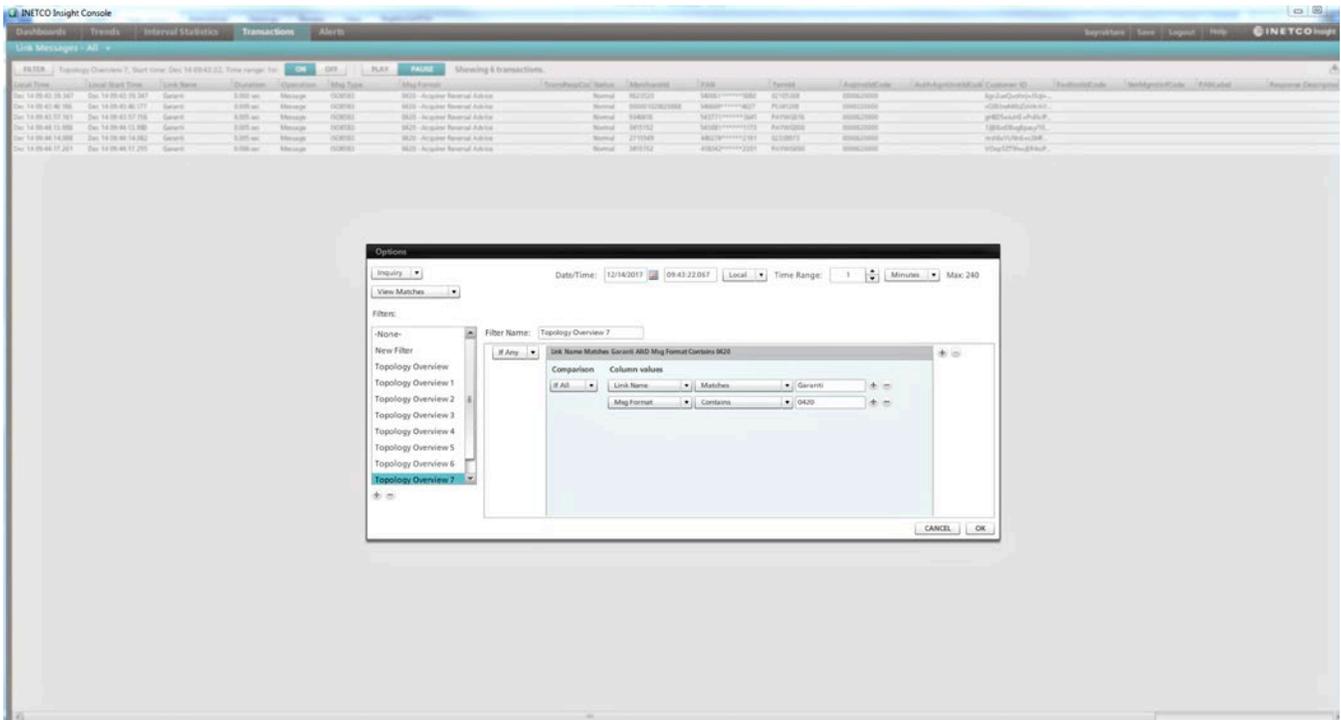
SCREENSHOT 3: Sample of BKM's transaction filtering

> "The holistic, real-time view BKM gained with INETCO Insight has resulted in faster engagement of the right resources who can immediately investigate the issue. We have been able to drop our average mean-time-to-repair from hours and days to a couple of minutes."

ALI BÜNYAMIN SERTER — VP, SWITCH SYSTEM APPLICATION DEVELOPMENT

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The Business Impact

INETCO Insight is now BKM's underlying, essential customer experience management tool that makes sure all transactions are running smoothly and seamlessly, without customer disruptions.

BKM's test and certifications group uses INETCO Insight to now see the entire end-to-end transaction data elements during testing. The operations team use INETCO Insight for rule-based notifications of transaction performance issues and faster investigation into member complaints. Benefits include:

Guaranteeing the Best Customer Experience Possible

- Immediately investigate member complaints and reduce the number of incomplete transactions
- See what is sent to the Switch, and what BKM has sent to the member/payment system; quickly drill down into any alarms/error messages to provide greater Switch availability
- Meet PCI DSS regulations with partial masking of sensitive data such as PAN, track data and CVV fields

Providing Exceptional Service Level Delivery for Member Institutions

- Utilize time stamps of incoming transaction messages to identify where response delays are occurring on the transaction path
- Gain visibility into external transaction messages and secure data sniffing at the TCP/IP level, without risking Switch performance or having to request data from members or payment systems
- Strengthen self investigations and analytics based on data warehouse queries into rich transactional data

Reducing Operational and Support Costs

- Reduce average mean time to repair from 8 days to minutes with full visibility into TCP/IP level monitoring and visibility into external transaction message data
- Improve quality of the Switch through the correction of erroneous cases caused by Switch functioning
- Streamline corrective actions, reduce resources and accelerate investigation speeds through centralized, real-time monitoring and rule-based alerting

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>3.3B	33	10−15%	88%
MONITORED TRANSACTIONS PER YEAR	**DOMESTIC MEMBER INSTITUTIONS**	**TRANSACTION VOLUME GROWTH PER YEAR**	**REDUCTION IN MEAN TIME TO REPAIR**

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The Future

BKM is using an active-active, load balancing infrastructure in one data center now. In the near future, BKM plans to upgrade their Switch environment to Dual Site, supported with an active-active, load balancing infrastructure on each site.

INETCO Insight will be used to monitor transactions processed in the two data centers and application servers, helping to reduce the risk of data center failures and to obtain even higher availability. BKM plans to deepen the current use of INETCO Insight by expanding real-time alerts to include scenarios such as:

- **A sudden decrease or increase in acquirer or issuer traffic**
- **Consecutive declines with the same response codes**
- **Erroneous messages which cannot be parsed by INETCO Insight**

There are also plans for deeper transaction analytics to improve reporting of customer card usage for its domestic members, such as:

- **Number of transactions per issuer and per acquirer**
- **Number of transactions processed by the Switch**
- **Number of stand in transactions**
- **Average time to completion per transaction**
- **Value of transactions by card type**

To learn more about INETCO Insight, request a demo or contact insight@inetco.com

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