

Bringing More Value to Every Transaction

A Look Inside MasterCard Global Technology and Operations



MasterCard
Worldwide

Right now someone, somewhere in the world, is using a MasterCard®-branded card. For millions of people, it is the preferred way to pay, and they count on MasterCard to be there for them every time. And we are there, thanks in large part to the expertise and innovation of the award-winning MasterCard Global Technology and Operations team.

Millions of times a day, every day, we process transactions with the reliability that the world has come to expect of MasterCard. We call this *commerce networking*, and it is at the very heart of our promise to our customer financial institutions and their cardholders. MasterCard is committed to making the most of our commerce networking expertise and flexibility to deliver customized business solutions to financial institutions. To ensure we serve our customers' technology and business needs, we foster an environment in which talented technologists are encouraged to merge their technology expertise with business acumen. The result: leadership in delivering to MasterCard customers the most advanced comprehensive solutions for their business needs.

Beyond the next transaction, we are here to build lasting partnerships of strength and value. We invite you to take a closer look at how our innovative technology delivers more value to our customers every day. Welcome to MasterCard Global Technology and Operations.

Sincerely,



Robert W. Reeg
President, Global Technology and Operations
MasterCard Worldwide



Talented Technologists



MasterCard Global Technology and Operations employees who have been named Business Technologists in recognition of their talent for applying their expertise to demonstrate and articulate commerce networking's value to MasterCard, its business partners and its customers

Award-Winning Achievements

Bank Technology News 25 Innovators – Joan Kelly 2008

Cintas Document Management Company Environmental Award – 2007

Computerworld Premier 100 IT Leaders – Jim Hull 2005

Computerworld Premier 100 IT Leaders – Rob Reeg 2004

Connect NonStop Availability Award – 2004, 2005, 2006, 2008

Hispanic Engineer Powerful Hispanic Executives in Technology & Business – Edgar Aguilar 2008

InfoWorld 100 – George Spies 2008

InfoWorld Top 25 Chief Technology Officers – George Spies 2008

Professional Organization of Women African-American Women of Distinction – Pat Smith 2007

Public Relations Society of America Silver Anvil – MasterCard Project Math

St. Louis American Foundation Corporate Executive of the Year – Pat Smith 2007

St. Louis Business Journal 30-Under-30 Award – Dan Schwent 2007

St. Louis Business Journal Most Influential Minority Business Leaders – Zundra Bryant 2008

St. Louis Regional Business Council Philanthropy Award for United Way Leadership – 2007

St. Louis Regional Chamber & Growth Association Spirit of St. Louis Technology Award – 2007

U.S. Banker Most Powerful Nonbank Women in Finance – Joan Kelly 2008

Working Mother 100 Best Companies – 2008

Global Technology and Operations Leadership



Standing, from left:
Nancy Tully, Senior Business Leader, Worldwide Communications
George Spies, Group Executive, Single Message Applications
Don Ascare, Group Head, Human Resources
Pat Smith, Group Executive, Information Products
Robert Reeg, President
Michael Manchisi, Chief Technology Officer and Group Executive, Service Management

Seated, from left:
James Whalen, Group Head, Business Financial Officer
Dan Woodruff, Senior Business Leader, Managing Counsel
Sheryl Andrasko, Group Head, Service Support
Joan Kelly, Group Executive, Dual Message and Core Applications

“MasterCard is at the heart of commerce, and Global Technology and Operations is at the heart of MasterCard.”
- Rob Reeg

Our Business

As consumers and businesses seek ever faster, more secure and more intelligent methods of payment for an ever-broadening array of transactions, MasterCard Worldwide is at the center, providing a sophisticated set of transaction processing and consulting services that enable economic connections, fuel commercial development on a global and local scale and drive business growth for our customers.

MasterCard is essential to day-to-day commerce, providing a critical link among tens of thousands of financial institutions, millions of businesses and hundreds of millions of cardholders.

Our success is built on a solid foundation – our business model as a franchisor, processor and advisor.

Franchisor

Through the thousands of financial institutions around the world that are MasterCard customers, the company markets a strong portfolio of brands and products – MasterCard®, Maestro®, Cirrus®, MasterCard®

PayPass™ and more. With these, MasterCard opens the door to commerce at more than 27 million acceptance locations worldwide.

Processor

Streamlined and intelligent, the MasterCard approach to transaction processing enables efficient commerce on a global scale. The MasterCard Worldwide Network, one of the largest networks in the world, offers unparalleled speed, integration and reliability – helping financial institutions and merchants grow by enabling rapid adoption of customized payment solutions that deliver value and added cardholder convenience through technology.

Advisor

MasterCard provides transaction insight using sophisticated processing and data-mining capabilities. For example, by tracking purchase behavior and buying trends around the globe, MasterCard provides business insight, market shift information and economic intelligence to our customers.



Global Technology and Operations: The Heart of MasterCard



At the heart of MasterCard is Global Technology and Operations, which has its worldwide headquarters in St. Louis, Missouri. Around the globe, GTO leverages technology to make every transaction more valuable for both MasterCard and our customers through the quality, speed and innovation of the IT services we provide.

MasterCard technologists deliver value through the synergy of five functions:

- The MasterCard Worldwide Network, an integrated global network with local flexibility for customers around the world.
- Fast and reliable payment processing for our customers and their cardholders.
- Customized and differentiated payment solutions, including value-added and hosted services.
- Experienced information technology and business leadership and top-notch support for our customer financial institutions.
- Strategic insight provided by our data warehouse – insight based on business intelligence and analysis.

By leveraging our expertise and innovation, MasterCard operates the industry's only fully integrated global payment processing network, which sets the global standard for reliability, agility, flexibility and security. As cardholders use MasterCard-branded payment cards at millions of acceptance locations, GTO seamlessly processes billions of transactions representing trillions of dollars each year.

MasterCard is at the center of it all, committed to ensuring that every transaction proceeds effortlessly and efficiently by driving the software systems and operational network that make each and every transaction possible.

Our goal is to bring more value to each transaction, making it a secure, reliable and rewarding experience for our customers and their cardholders. This is the MasterCard brand promise to our customers and the essence of what we do at GTO.

“We combine technological expertise with business acumen to deliver the most comprehensive, strategic solutions to our customers.”
- Michael Manchisi



Behind the Transaction

Transactions require a series of steps between the parties involved, and MasterCard facilitates these steps. We ensure that transactions are flexible, innovative, convenient and secure.

Authorization

During the first and most critical step in the transaction flow, MasterCard transports messages and guidelines to verify the identity of the cardholder, the authenticity of the card and the availability of the funding. Also, we provide sophisticated authentication and authorization controls that manage risk at the point of purchase. MasterCard does all of this in about 140 milliseconds, or about the time it takes to blink an eye. And we do it more than 40 million times a day.*

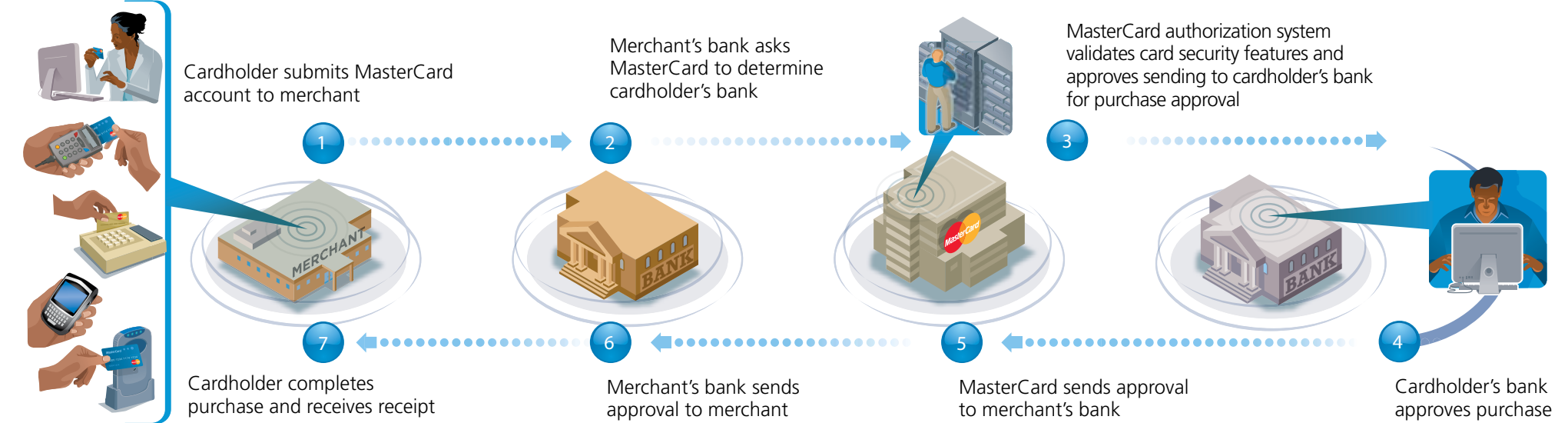
Clearing

Clearing is the step when MasterCard transmits transaction data between parties to ensure all parties have the necessary information to settle the transaction, and that the transaction is settled according to payment guidelines and rules.

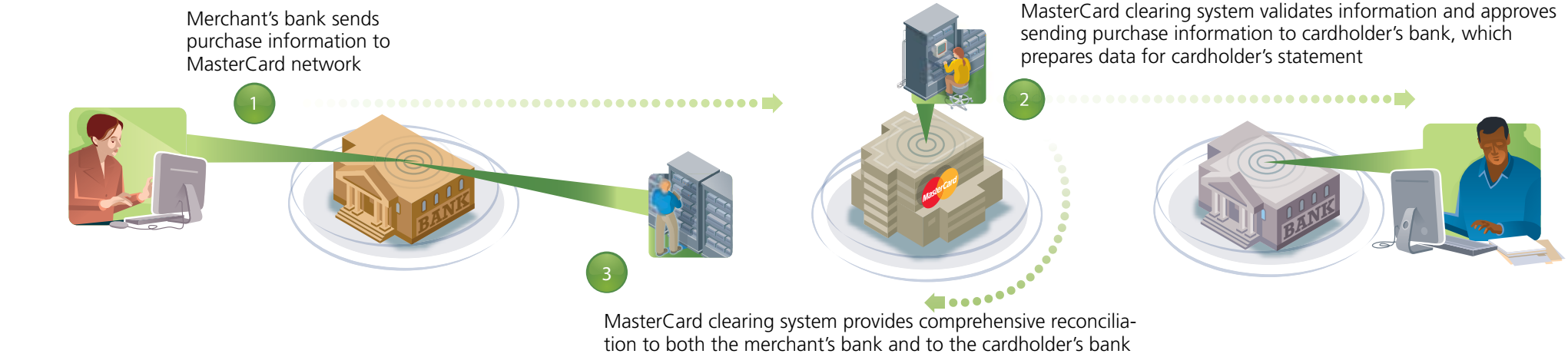
Settlement

During settlement, MasterCard facilitates the exchange of funds to ensure the appropriate parties are paid. Each year, MasterCard transfers trillions of dollars (in more than 160 currencies) among thousands of financial institutions.

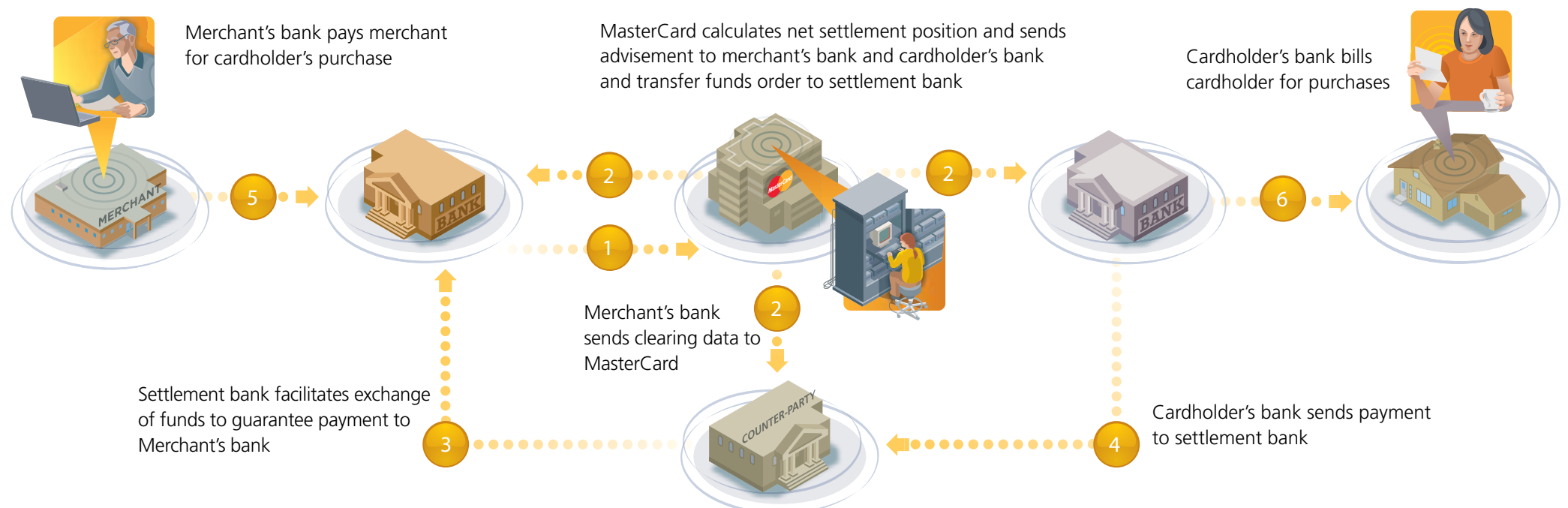
AUTHORIZATION



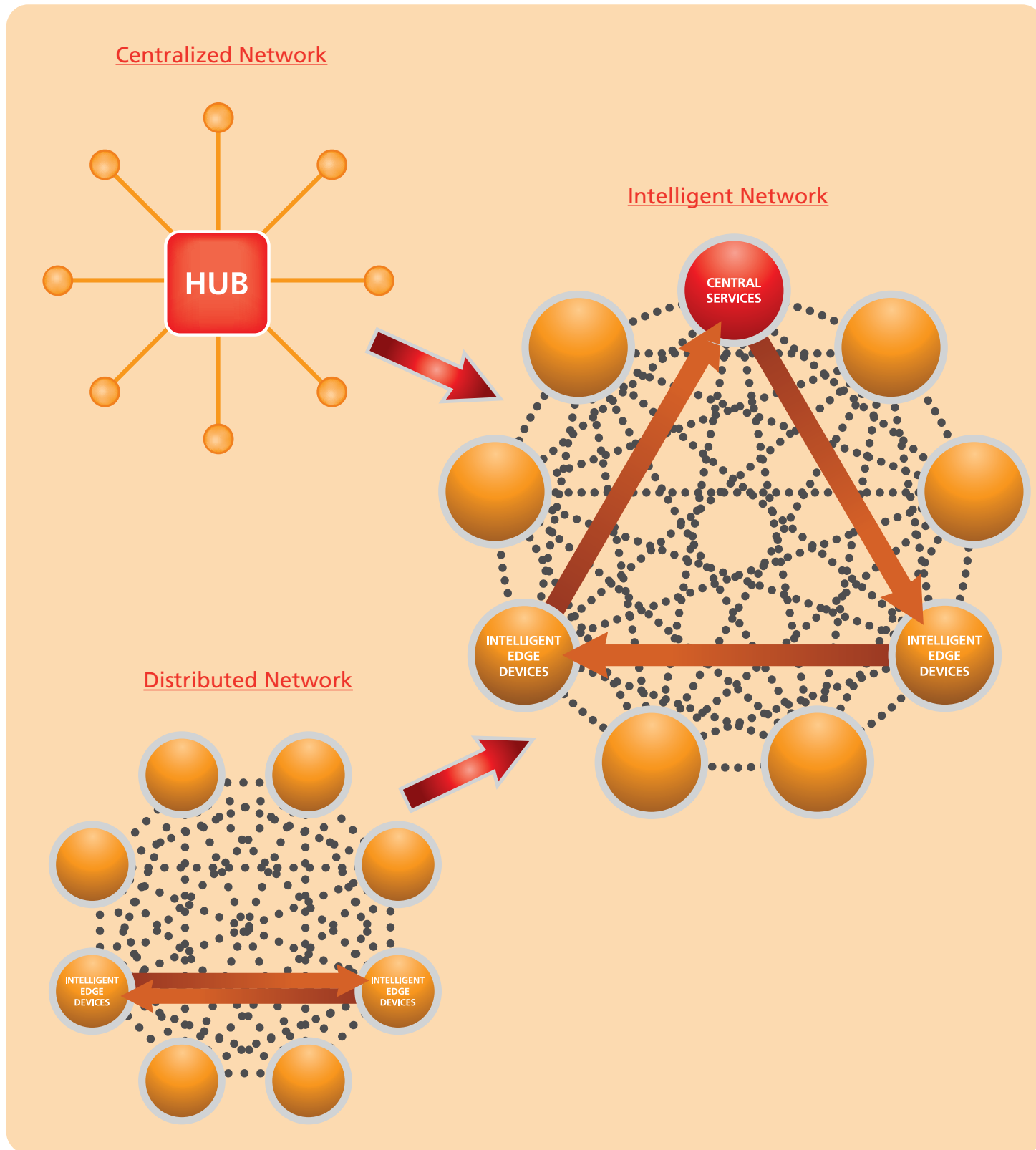
CLEARING



SETTLEMENT



*As of fiscal year-end 2007



The MasterCard Worldwide Network: The Critical Link

Enabling each transaction's succession of steps is the MasterCard Worldwide Network, which provides our customers with quality, scalable commerce networking that is consistently reliable and secure. The network is a critical link among financial institutions, businesses, cardholders and merchants worldwide, processing 18.7 billion transactions per year.*

The architecture of the MasterCard network is unique to the payments industry, blending two traditional processing architectures – distributed and centralized.

Distributed processing is inherently fast and reliable, taking place at points on the network that are close to where transactions occur.

Centralized processing provides real-time availability and a high volume threshold by processing through a central hub. We adapted

the MasterCard Worldwide Network to realize the advantages of both architectures, creating the most comprehensive, dynamic and efficient network in the industry.

Maximizing the value of each architecture type is the network's intelligence, which determines the optimal processing route for each transaction. Transactions requiring the fastest, most streamlined processing travel through MasterCard routers that are in close proximity to each transaction's occurrence. Transactions that require specialized, value-added processing are evaluated at the MasterCard central site before being routed to the appropriate financial institution. A specialized transaction may require value-added processing to score risk, evaluate consumer rewards or enable cardholder-driven spending controls.

Our intelligent network significantly differentiates MasterCard in the

payments industry because of its speed and ability to automatically adapt to the individual needs of each transaction.

As a result, our customers can accommodate emerging payment technologies and trends to more effectively respond to the needs of their cardholders.



*As of fiscal year-end 2007

Adding More Value to Every Transaction

When MasterCard processes a transaction, it delivers value for all participants in the payments value chain – cardholders, merchants and financial institutions alike.

For MasterCard, a transaction is most valuable when:

- It carries the MasterCard brand, and MasterCard processes it.
- It improves profitability for our stakeholders.
- It provides a secure, reliable, convenient and rewarding experience for our customer financial institutions.
- It provides rich and meaningful information for everyone in the value chain.

We provide transaction information to our constituents through our sophisticated data warehouse, which delivers aggregated data across accounts and product lines. The warehouse provides a 360-degree view of information and has the flexibility and intelligence to supply customizable geographic and

demographic data to our customers.

The superior speed of the MasterCard network makes possible quick, convenient transactions like those offered with PayPass™ contactless payments. Our network performance is especially advantageous in environments where speed is essential – quick-service restaurants; mass transit, such as subways, buses, taxis and tollbooths; gas stations; drug stores; movie theaters; and sports arenas.

MasterCard is committed to securing the payments environment for all parties. We secure the flow of transactions to make electronic commerce viable, and we build loyalty programs that deliver rewards to cardholders for card usage.

Processing billions of transactions each year, the MasterCard network consistently operates at the highest Six Sigma standards, with 99.999 percent network availability.



Global Reach

Global expansion and business consolidation mean that MasterCard customer financial institutions need a payment network that spans the globe. It must have the ability to scale – to grow as they grow – as well as the flexibility to provide local customization for business practices, languages and currencies.

Our payment network provides customers with the best of both

worlds – global reach and the ability to localize programs according to needs, opportunities and different legal and regulatory environments. The ability to customize programs, country by country and region by region, is one of the key benefits of the MasterCard network – the only truly globally integrated network.

Mission Control

MasterCard operates 24 hours a day, seven days a week, 365 days a year. At GTO headquarters in St. Louis, our Operations Command Center and Data Center process transactions quickly and accurately, day and night.

In the Operations Command Center, the industry's most highly trained professionals manage the MasterCard Worldwide Network to maintain its optimal performance for credit, debit and prepaid transaction activity.

In addition, we monitor the systems and networks of our customers. When a customer experiences a network crisis or system interruption, we instantly detect it and immediately contact the financial institution to determine a solution. If necessary, MasterCard can stand in for a customer network to ensure uninterrupted cardholder services.

As a result, our cardholders have the freedom and security of knowing their cards will work anywhere, any time and every time.



The MasterCard Data Center contains:

- 817 miles of conduit
- 495 miles of wire
- 120 miles of copper infrastructure
- 200 miles of optic infrastructure
- 535 data cabinets
- 1.8 petabytes of available storage
- 2.8 miles of cable tray beneath raised floors

Always On

The Data Center generates enough power to support a city of 30,000 people and can operate indefinitely on back-up generators. We are staffed around the clock inside a specially built facility that is impervious to extreme conditions including fire, flood, tornado and earthquake.

Such power demands rigor and responsibility for efficient use and management at every level.

Although the volume of transactions we process requires that the Data Center be vast, we constantly explore ways to make it more efficient. Techniques such as virtualization help us control server sprawl and lessen power consumption. As a result, we are able to process substantially more data with a minimal addition of servers. In addition, we monitor hardware power consumption and upgrade systems to garner maximum energy efficiency.



Always Ready

MasterCard is at the forefront of disaster recovery and business continuity planning in the financial services industry. Our industry-recognized operational resilience ensures our reliability as a business partner.

Beyond addressing traditional needs for disaster recovery planning such as a power outage or telecommunications interruption, we focus on the new concerns of the 21st century including terrorism threats, military conflict and epidemic. We have embraced regulations that require business continuity planning across the payment value chain. We collaborate with customers and key service providers to help ensure that our network is always available.

To protect our customers' critical data assets, we invest in redundant equipment, software and processing sites around the world that, at any given time, are ready to meet data recovery and capacity needs.

The need for greater processing capacity – while maintaining high levels of service quality – continues to grow. Customer expectations have never been higher, demanding access to information and transaction capability around the world, around the clock. We support more than 7.2 billion instructions per second, and our main co-processing facility can process an additional 1.7 billion instructions per second.

To meet customer demand, we combine reliability, availability and recovery into a single strategy and promise: to always be here for our customers and cardholders, ready to process the next transaction. No matter what.



Always Secure

MasterCard continues to develop new security initiatives to help detect and prevent fraud.

The payments industry faces increasing security challenges as the transaction environment grows in size and complexity. With more stakeholders, payment channels and people driving the use of payment cards, maintaining the integrity of the payment system has never been more challenging or important.

For more than 40 years, MasterCard has been an industry leader in safeguarding cardholder data by collaborating with all members of the payment card value chain to create innovative security solutions, such as the first tamper-evident signature panel, three-dimensional holograms

and advanced fraud prevention and detection technology.

This heritage, combined with applied insights into security technologies and fraud trends, demonstrates the MasterCard commitment to combat fraud and ensure the integrity of the payments environment.





MasterCard employees help educate students about entrepreneurship, workforce readiness and financial literacy through Junior Achievement's JA in a Day program.

Responsible Corporate Citizen

MasterCard employees are passionate in sharing their time and talents to make a difference for those in need. Through activities like mentoring, rehabilitating homes and providing financial literacy education, employees contribute thousands of volunteer experiences during the year.

In addition, MasterCard contributes significant support to critical areas of need in the St. Louis area, including helping nearly 200 health and human service agencies through an annual United Way campaign. Also, MasterCard provides grants to support diverse populations served by organizations such as Junior Achievement, the International Institute of St. Louis, Cardinal Glennon's Costas Cancer Center, Missouri Families for Effective Autism Treatment, Rebuilding Together and St. Louis Effort for AIDS.

To help local non-profit organizations raise additional funds, MasterCard leverages the power of its brand through preferred card relationships, encouraging cardholders to use their MasterCard cards to support designated cultural organizations.

In 2006, MasterCard instituted an award-winning corporate philanthropy endeavor called Project Math, a program that advances student mathematics achievement in the St. Louis region by increasing support for math teachers.

Cutting Consumption

Conservation is another hallmark of good corporate citizenship. MasterCard's holistic approach to energy efficiency takes into consideration the technology we implement as well as the physical plant.

In an effort to consume the least possible amount of energy, we source the most power-efficient systems for

our Data Center networking hubs. We consolidate server functionality through virtualization, using software to combine operations and data from several individual servers to one.

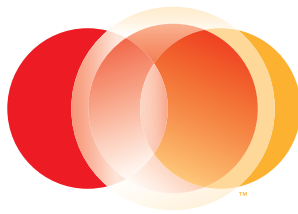
Through consolidation, we reduce the energy associated with powering and cooling numerous racked, centralized computers.



Building the Future

The goal of the Global Technology and Operations organization is to make every transaction more valuable. We continually evolve our payment network and platforms to accommodate new and emerging ways to pay. Our dedication to innovation and our global structure enable us to quickly adapt the successes and advancements of one region to meet the emerging needs of others.

From contactless transactions and mobile phone payments to innovations borne of evolving technology and consumer preferences – you can be certain that the MasterCard Worldwide Network is at the forefront of whatever comes next.



MasterCard
Worldwide

www.mastercard.com