Relationships of Convenience: Network Gateways

By Jo Burek

Network gateway service isn't a new concept – it really started with X.25 in the late 70s. Even in those days, Telco-offered gateways were embraced by both payment processor and merchant as a cost-effective means of connecting many diverse retailers and stores to critical debit and credit authorization applications. But as good as X.25 was, it suffered from low bandwidth, single application identity and high cost – poor competition to faster, more functional, less costly IP services.

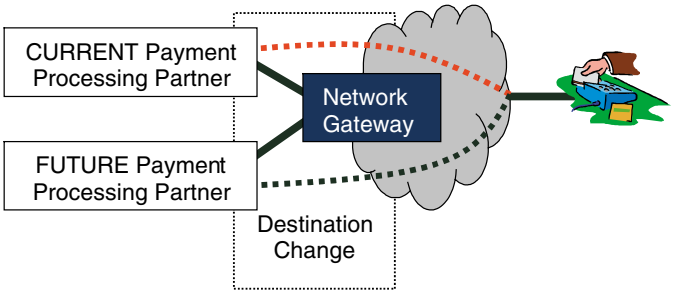

Figure 1: Network Gateway Access to Application Partner

IP and its network ramp, DSL, make today's network gateways simply more compelling. Their ubiquity, speed, security — via either Virtual Private Networking (VPN) or Secure Socket Layer (SSL), high tolerance to multiple applications, and destination points and cost, are the reasons why they're rapidly replacing traditional implementations.

And, network gateways facilitate easy business change. At last count, within the retail/payment processor sector, processor alternatives numbered over thirty primary and secondary processors (from the original five banks of yesteryear) and, they're all willing to compete on price and service for shorter, less restrictive terms — all which makes the prospect of change a great deal more attractive.

And, change, via a network gateway, is relatively easy.

As depicted in **Figure 1**, changing a soft destination, via a network gateway, does not impact the physical attributes of the remote or terminating location. Both ends are virtually, not physically, coupled.

In this instance, the authorization transaction, as initiated by the card swipe device, terminates at the network gateway portal using gateway-specified security attributes – usually VPN or SSL. Transactions are then routed from the gateway to the appropriate processing partner.

Network gateway functionality can be brought up a notch by adding middleware. Middleware is the Babel fish within the financial/retail software/hardware sectors and provides the remote and termination locations the simultaneous translations that each end needs to see — based on their own internal format and processing specifications. In addition, the network gateway is an ideal location to implement statistical reporting and other applications and processing partners, such as gift or loyalty.

Network gateways do provide great flexibility to both application partners and merchants. What appeals most to applications partners is network gateways' ability to consolidate many merchants, offer single point of contact and linked helped desks (to assist in end-to-end trouble resolution), deploy merchant terminations quickly, and host diverse or value-add applications.

In addition to the above, merchants see network gateways as the means that allows them to add or change partners without great effort.

Direct connection (**Figure 2**) to an applications partner is more restrictive and physically resistant to quick & easy change, but ideal for formal, longer term, high-bandwidth relationships. Any change effort translates to an in-order / out-order exercise with all the idiosyncrasies normally associated with replacing hard connections and physical components.

Network gateways also offer a choice between corporate or individual connections. Corporate is defined as primary site that serves as a consolidation point for all other secondary sites. One virtual link exists between the primary site and the network gateway. Individual connections are direct, virtual connections between the remote site and the network gateway.

Regardless of corporate or individual connection routing – the selection dependant upon merchant preference, processor, or your point-of-sale terminal and software – using a network gateway removes the connectivity and component maintenance / management burden, provides geographic and hardware/software diversity and redundancy, and also provides non-disruptive failover from primary to secondary sites.

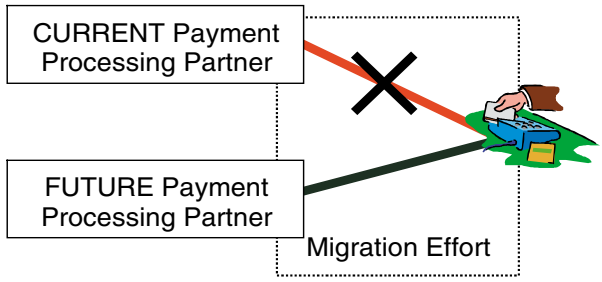

Figure 2: Direct Connection to Application Partner

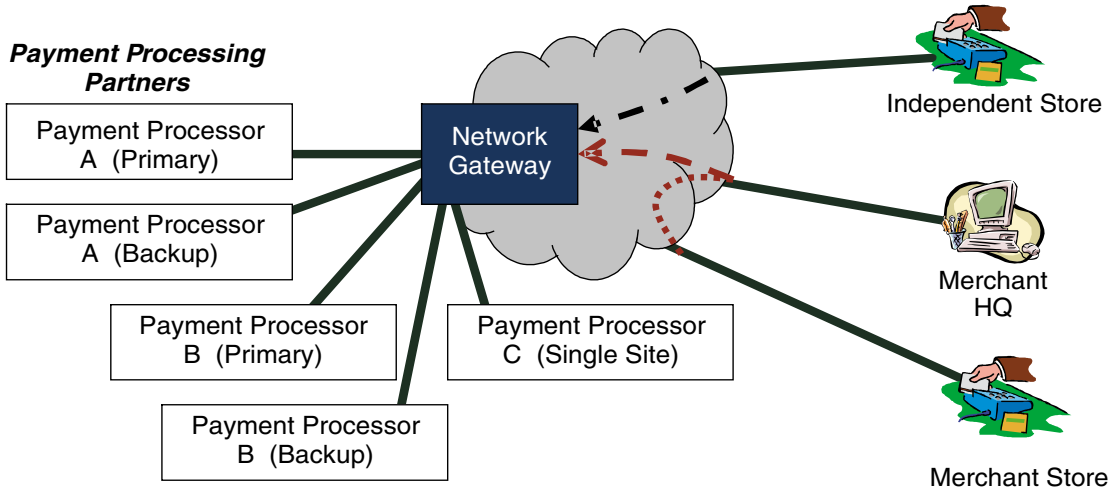

Figure 3: Network Gateway Access – Direct to Store and via Merchant HQ

In **Figure 3**, the Merchant Store is first routed to the Merchant HQ; the transaction is then sent to their selected Payment Partner via the gateway. The network gateway decides – based on availability – whether routing occurs to the Primary or Secondary site. The Independent Store routes directly to the gateway and is offered the same primary-to-secondary failover protection.

In summary, today's modern network gateway has the advantage not only of impartiality, but also of access to a variety of applications providers and processors, as well as the advantage of taking ownership of the route and its hardware and software components; thereby sunstantially reducing time, effort and cost to the subscribing merchant.

Next time: "Selecting an enterprise-class gateway provider" — because service levels do matter.)

***Jo Burek** has designed and implemented systems and communications solutions for retail, finance, government, manufacturing, oil/gas and Internet companies for over twenty years. Radiant Communications, Ameritech (SBC), Canadian Satellite Communications, Bell Canada, Sprint Canada and Motorola are representative of the organizations that Ms. Burek has held technical and management positions. **Gateway or IP networking questions?** Please contact Jo at (647) 200-4924 (cell) or jburek@radiant.net.*