In one aspect, the invention is directed to an apparatus including: a first I/O port; a second I/O port of a same type as the first I/O port, wherein the second I/O port is connected to the first I/O port such that data passed into the first I/O port is allowed to pass through the apparatus to the second I/O port unimpeded, prior to analysis of the data, in at least a first operating mode; a processor; and a non-transitory computer readable medium storing instructions thereon wherein the instructions, when executed, cause the processor to: collect information passed from a first computing device connected to the first I/O port to a second computing device connected to the second I/O port, identify, from the information, transaction data; and provide, to a third computing device, the transaction data.

In certain embodiments, the first computing device includes a point of sale terminal and the second computing device includes a purchase recording device. In certain embodiments, the apparatus further includes a third I/O port, wherein the third I/O port is configured for connection to the third computing device; and providing the transaction data includes transmitting the transaction data via the third I/O port. In certain embodiments, the apparatus further includes a communication port, wherein the communication port is configured to connect to a network communications device, and providing the transaction data includes transmitting the transaction data via the network communications device. The network communications device may include one of a modem, a router, a hub, and a gateway, for example.

In certain embodiments, the apparatus further includes an antenna, wherein providing the transaction data includes transmitting the transaction data via the antenna. In certain embodiments, a connection between the second I/O port and the first I/O port is configured to pass data through the apparatus while the apparatus is disconnected from all power sources. In certain embodiments, each of the first I/O port and the second I/O port includes a serial connector. In certain embodiments, the apparatus further includes a third I/O port and a fourth I/O port, wherein: the fourth I/O port is connected to the third I/O port such that data passed into the third I/O port is allowed to pass through the apparatus to the fourth I/O port unimpeded in at least a first operating mode, and each of the third I/O port and the fourth I/O port includes a USB connector.

In certain embodiments, in a second operating mode, the instructions cause the processor to: buffer at least a portion of the data received at the first I/O port; and forward at least a portion of the buffered data to the second computing device via the second I/O port. In certain embodiments, in the second operating mode, the instructions cause the processor to introduce injection data to the second computing device via the second I/O port prior to

forwarding the at least a portion of the buffered data. In certain embodiments, buffering the portion of the data includes temporarily storing the portion of the data in a buffer region of a storage medium. In certain embodiments, the non-transitory computer readable medium includes the storage medium.

It is contemplated that combinations of the above features may be used in the apparatus.

In another aspect, the invention is directed to a method including: collecting, by an intermediary device installed between a point of sale computing device and a second computing device, information passed from the point of sale computing device to the second computing device, wherein the intermediary device is configured to collect at least a portion of the information while the information passes between the point of sale computing device and the second computing device unimpeded ~~by the intermediary device~~, prior to analysis of the information; identifying, from the information, transaction data; and providing, to an external computing device, the transaction data.

In certain embodiments, the method further includes: identifying, from the information, printing instructions; and responsive to identifying the printing instructions, buffering the information, identifying injection information for injecting into a print stream, wherein the print stream is provided by the point of sale computing device to the second computing device, and injecting the injection information prior to transmission of a portion of the print stream to the second computing device.

In certain embodiments, the method further includes: identifying, from the transaction data, sensitive information; and prior to providing the transaction data, applying a security algorithm to the sensitive information. In certain embodiments, the sensitive information includes payment information. In certain embodiments, the security algorithm includes a strong one-way hash.

In certain embodiments, the method further includes, prior to providing the transaction data, compressing at least a portion of the transaction data. In certain embodiments, the method further includes, prior to providing the transaction data, filtering at least a portion of the transaction data. In certain embodiments, providing the transaction data includes transmitting the transaction data wirelessly. For example, at least a portion of the transaction data may be transmitted via at least one of WiFi™, WiMAX™, Bluetooth®, and Unstructured Supplementary Service Data (USSD) text message.

In certain embodiments, providing the transaction data includes providing, to a remote server via a network, the transaction data. For example, providing the transaction data may

include providing at least a portion of the transaction data to a payment terminal. In certain embodiments, the payment terminal is connected to the intermediary device via a wired connection.

In certain embodiments, a payment terminal is connected to the intermediary device via a wired connection, and the method further includes receiving, from the payment terminal a print injection command. In certain embodiments, the method further includes, responsive to receiving the print injection command: identifying injection information; and injecting the injection information into a print stream, wherein the print stream is provided by the point of sale computing device to the second computing device. In certain embodiments, the injection information is received from the payment terminal.

In certain embodiments, a payment terminal is connected to the intermediary device via a wired connection, and the method further includes receiving, from the payment terminal, a print blocking command. In certain embodiments, the intermediary device is installed between the point of sale computing device and the second computing device by one of a WiFi™, Bluetooth®, and wireless Ethernet connection.

In certain embodiments, identifying the transaction data includes filtering the information to identify at least one of a product name, a product type, and a price. For example, the method may further include: analyzing the transaction data; and matching an offer based upon at least one of a threshold purchase quantity, a threshold cost, a product type, and a product name. In certain embodiments, the method further includes determining, based upon the offer, print instructions for injection to a print stream destined for the second computing device.

In another aspect, the invention is directed to a system including: a data extraction device including: a first I/O port; a second I/O port of a same type as the first I/O port, wherein the second I/O port is connected to the first I/O port such that data passed into the first I/O port is allowed to pass through the apparatus to the second I/O port unimpeded, prior to analysis of the data, in at least a first operating mode; a communications channel configured for communication with a computing device, wherein the computing device is configured to collect transaction data extracted by the data extraction device; a processor; and a non-transitory computer readable medium storing a set of instructions that, when executed by the processor, cause the processor to: collect information passed from a first computing device connected to the first I/O port to a second computing device connected to the second I/O port; and provide at least a portion of the information to the computing device.

In ~~another aspect~~an embodiment, the invention is directed to a method including: receiving, at a computing device, transaction data regarding one or more transactions conducted at a point of sale; receiving, at the computing device, customer information, wherein the customer information is associated with at least a portion of the transaction data; associating, by a processor of the computing device, the transaction data with a customer loyalty program account; preparing, by the processor, based upon the transaction data, an electronic receipt; providing, by the processor, the electronic receipt to the loyalty program account; identifying, by the processor, from the transaction data; one or more purchases affiliated with a rewards program, wherein the rewards program includes at least one of an electronic punch card program and a credit rewards program; and updating, by the processor, based upon the one or more purchases, rewards information associated with the loyalty program account. In certain embodiments, providing the electronic receipt includes providing the electronic receipt for review at a customer mobile device at the point of sale responsive to completion of a first transaction of the one or more transactions. In certain embodiments, the method further includes analyzing, by the processor, the transaction data to identify one or more offers; and providing, for review at a customer mobile device, the one or more offers.

In another aspect, the invention is directed to a system including: a processor; and a non-transitory computer readable medium storing a set of instructions that, when executed by the processor, cause the processor to: identify transaction data regarding a transaction conducted at a point of sale; analyze the transaction data to identify one or more offers, wherein at least one offer of the one or more offers is associated with at least one of a product, a product type, and a cost; prepare injection information comprising at least one of the one or more offers; and provide, for injection as print data to a receipt printer by an intermediary device installed between the point of sale device and the receipt printer, the injection information. In certain embodiments, the instructions, when executed, cause the processor to: identify customer data associated with the transaction data; and identify historic transaction data associated with a customer account identified by the customer data, wherein identifying the one or more offers further includes analyzing the historic transaction data to identify at least one of the one or more offers.

In ~~another aspect~~an embodiment, the invention is directed to a loyalty terminal device including: an input device; an I/O port configured to communicably connect the loyalty terminal device to an intermediary device, wherein the intermediary device is configured for installation between a point of sale device and a second computing device; a communications channel configured for communication with a computing device; a processor; and a non-transitory

computer readable medium storing a set of instructions that, when executed by the processor, cause the processor to: receive a customer identifier via the input device, provide the customer identifier to the computing device via the communications channel, responsive to providing the customer identifier, receive a command from the computing device, and forward the command to the intermediary device.

In certain embodiments, the command includes a print injection command. In certain embodiments, the command includes a print blocking command. In certain embodiments, the set of instructions, when executed, cause the processor to: receive, from the intermediary device, transaction data; and forward, to the computing device, the transaction data.

In certain embodiments, the loyalty terminal device further includes an antenna, wherein the communications channel includes a wireless communications channel via the antenna. In certain embodiments, the input device includes a card reader. In certain embodiments, the input device includes an optical scanning device. In certain embodiments, the loyalty terminal device further includes an antenna, wherein the set of instructions, when executed, cause the processor to provide, to a mobile device associated with the customer identifier, via the antenna, loyalty program information. The loyalty program information may include a reward redeemable towards a purchase, for example.

In another aspect, the invention is directed to a non-transitory computer readable medium, wherein the computer readable medium stores instructions that, when executed by a processor, cause the processor to: collect information passed from a point of sale computing device, prior to analysis of the information, without impeding transmission of the information to a destination associated with the information; identify, from the information, transaction data; and provide, to an external computing device, the transaction data, wherein the destination includes a computing device comprising the processor; a printer module of the computing device receives the information; and a transaction collection and analysis module of the computing device collects the information.

In certain embodiments, the instructions, when executed, further cause the processor to: receive, from the external computing device, an injection command; responsive to identifying the injection command, buffer a print stream passed from the point of sale computing device, identify injection information for injecting into the print stream, and inject the injection information prior to transmission of a portion of the print stream to the destination.