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Updated Nov. 17, 2017

The Information Trust Exchange Governing Association ¹

*Making the market for digital information:
Identity . . . privacy . . . payment*

TECHNOLOGY DESIGN / IMPLEMENTATION

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¹ -- An independent, nonprofit, public-benefit corporation formed Jan. 30, 2017 in the State of California.
See the [Articles of Incorporation](#).



A. User experience

The design process for ITEGA's operations was informed by the meetings of the four ITEGA task groups in 2015, and the research and white papers commissioned by the Donald W. Reynolds Journalism Institute (RJI). Prototype development and business planning continued throughout 2016 and 2017.

TWO OPERATING COMPONENTS

Technically, ITEGA supports two broad initiatives:

- **ITEGA PROTOCOLS** -- A set of technical protocols and business rules which govern the transfer of specific information across the public TCP/IP network (Internet) among and between (a) diverse point-of-service (POS) devices, such as laptops, smartphones and tablets and (b) network members, including content providers (CP) and end-user service providers (USP).
- **ITEGA NETWORKS** -- Special-purpose networks that securely transfers information among and between network members, including content providers, end-user service providers, network operators and network service providers.

LIKE VISA, PHONES, BUT BIG BROTHER IS BLIND

What is intended is similar in some respects to the Visa/MC model, but in one key way it is more like the way the phone companies settle their calling traffic -- they settle aggregated debits/credits among each other based on numbers of calls exchanged -- but their consumer customers may be paying for minutes in bulk. The system tracks every call because that is necessary even to provide unlimited calling packages to the public. This system as described permits a plurality of subscription packages with pricing as in a free market for digital information -- set by the service provider who holds the end-user's account, and also set by the publisher who wants pricing control over their content.

Where those two come together -- content sold at wholesale and subscriptions sold at retail -- is where the business opportunity lies -- arbitraging the cost of content against the subscription charge. Actually that's the same thing newspapers did -- arbitraging the cost of syndicated content, wire service and original reporting and advertising production costs against what was charged advertisers and subscribers. It seems simple and obvious today because it settled out over a 100 years or more. It's what every

business figures out -- how to mark up your ingredients to make a profit at retail. We simple have to work out the arbitrage in this new world. This system provide the mechanics; the arbitrage is up to the market.

So in this system, Big Brother is blind for other than session authentication and billing purposes.

POC STAKEHOLDER EXPERIENCES

Prototype versions of ITEGA-sanctioned network services are to be designed for both industry and public stakeholders:

They will be designed so that news and other publishers can:

- Grow audiences
- Increase revenue (monetize off-sITEGA content, higher CPMs from non-subscribers)
- Deepen user relationships (greater impact; ROI goes up)

They will be designed so that public users:

- Efficiently find helpful and relevant information personalized to their interests/needs
- Find such relevant information faster and easier
- Have new and better control over their data and identity
- Increase their connection with geographic and topical communities
- Find the service valuable enough to pay something by subscription or per-click

In the process, news organizations will:

- Learn what it takes to aggregate content automatically and efficiently
- Collect and share user data/behavior on a “permissioned” basis
- Receive data about their users who leave their sITEGA or service
- Receive anonymous data about other’s users who come to their site/service from elsewhere

Proof-of-concept testing will:

- Track user data and collect analytics (not use cookies except for state management)
- Test advertising delivery by anonymous cohorts
- Test networked subscriptions
- Personalize content
- Evaluate and analyze results

FOUR OBJECTIVES

The Information Trust Exchange Governing Association has four objectives:

- Foster network standards and collaboration among existing consumer-facing services, and enable new ones.

- Help enable for the public convenient access to trustworthy, valuable **personalized** content packages and services from one, privacy-respecting account.
- Create a platform that will support at least two **business models** for publishers:
 - Wholesale-retail pricing and aggregated payments for digital content sharing.
 - Sharing of standard-format end user interest profiles for optimum personalization and user-permissioned marketing and advertising.
- Offer a balanced alternative (between government regulation and investor-owned “closed” platforms) for online identity and **privacy** management that:
 - Reduces by market forces the proliferation of opaque, proprietary, unaccountable cookie-based tracking
 - Enables a range of privacy/identity trust alternatives for the public

OPERATIONAL REQUIREMENTS

- NETWORK SUBSCRIPTIONS – The service should allow publishers to be paid for providing digital content across an ITEGA network without having to have one-off relationship with each reader/user.
- DYNAMIC SERVICING – Publishers offering their content should have real-time personal, demographic, preference or interest attributes of a user/reader at the time the user makes an online/mobile request for information, so they can respond with targeted, customized messages or services.
- MICROACCOUNTING -- Publishers should not be required to participate in operations which “pool” royalties. Rather, a feature of the service should be census-type (vs. polling, pooling or sampling) logging and aggregation of billable content requests, with clearing-house settlement of payments and credits among publishers and user-account managers.
- WHOLESALE-RETAIL PRICING – Publishers shall be able to use one or more methods to establish the price they wish to receive (and be assured of payment) for a discrete digital object (or bundle), and be able to vary that price dynamically in real time based upon the attributes of the user requesting the object.
- ONE BILL/ACCOUNT –The service will enable a user/reader to have one bill/one account/single sign-on access to information from (virtually) anywhere, by subscription or by click/action?
- UNIVERSAL TRACKING – In order to gain the participation of publishers and advertisers, the system will enable a user’s activity to be tracked across the ITEGA network and that activity aggregated – only -- to the user’s home-base service provider for billing and analysis – contingent upon explicit permission of the user.
- CONTENT PACKAGING – In order to gain the participation of end users, publisher and billing-service users of the system should be able to facilitate custom assembly by the end user of

information services from a variety of topical and geographic-oriented sources into personalized subscription packages.

- **FREEMIUM vs. FREE** – In order to gain participant of both privacy advocates and the advertising industry, the system should allow the public user to chose among a range of options from (1) no advertising and no disclosure or use of their tracked activity in a subscription-based approach to (2) receipt of highly customized commercial messages and the wide, background marketing of their information preferences in a rewards-based program approach.
- **SUBSCRIPTION OR PER-CLICK** – In order to satisfy the requirements of a plurality of publishers and service providers, the service should offer end users both sale or receipt of digital items within a pre-paid subscription package -- as well as being able to dynamically query the user if they want to purchase a particular resource on a one-time, one-item basis.

B. Design strategies

STRATEGIC ASSUMPTIONS

An important design criteria for the protocols – nothing should stop a participating affiliate or publisher from continuing to operate within their silo. A good analogy might be to a department or big-box store that accepts Visa or Mastercard, but also continues to offer its own store revolving credit card.

Apple seems unlikely to join the ITEGA ecosystem if that ecosystem requires Apple to shut down the iTunes store or alter fundamentally how it operates. Ditto with Amazon and with Facebook Credits and Connect. The ITEGA protocols have to be additive to these businesses -- a way for them to expand from their three-party services into a true four-party trust network.

Worth noting again here is Google executive Chairman Eric Schmidt's comments in May, 2011, when interviewed by Kara Swisher and Walt Mossberg. Generally Internet infrastructures are open and multiple players can participate, Schmidt said. In that context he saw it as not a good thing that the identity space is practically being managed at this point by Facebook Connect. And he observes that it would be a good idea if that was done in an open networked, collaborative way with a bunch of companies doing it. (See: <http://tinyurl.com/43g3xyo>) In effect, Schmidt was endorsing the ITEGA concept.

MARKET ASSUMPTIONS

The ITEGA accepts six strategic market assumptions:

- **COLLABORATION** -- While the number and independence of original news producers is an important element of a diverse press, the lack of collaboration on digital-media standards for sharing users and content value is impairing support for journalism. Collaboration on network sharing protocols and business rules is therefore essential to sustain competitive, independent journalism.

- **SCALE** -- Nearly all individual elements of the U.S. news industry are too small and lack present network capabilities sufficient to provide a compelling, personalized, broad-spectrum information service to their publics -- except through either: (1) Alignment with the goals and businesses of giant technology platforms or (2) Collaboration with other news and information organizations – legacy or pure-play digital.
- **BEYOND ADVERTISING** -- The decline of independent local retailing, the “nichification” and “digification” of verticals (autos, employment, food-entertainment, soon preprints) and the rise of tech platforms for contextual and social advertising have undermined advertising as a feasible core strategy for local news providers (print, radio and eventually TV).
- **NETWORK SUBSCRIPTION** -- Single-sITEGA subscription services have plateaued as a revenue source. They are a gateway to local news that lacks sufficient appeal to an increasing percentage of available audiences -- unless personalized, delivered to mobile devices and augmented with a variety of other types of information and services. Subscription bundles must reach across services and publications.
- **CONTENT ATOMIZATION** -- Publishers need a way to make money when they distribute their content outside their own “publication.” This requires a common standard for tracking access at the story or “digital object” level (“atomized content”) so that value can be attributed (whether credit for ad views or content reading) and exchanged.
- **ENFORCEABILITY** – Transparent exchange rules, rather than government regulation or private fiats, assure network trust, the public interest in privacy and identity management. “Bad actors” are sanctioned or removed. The ITE’s role is trusted because it does not compete with participants. Hence, the need for a non-governmental and non-investor-owned entity with a mission to efficiently oversee and operate a service and not profit from it. Profit is for the publishers and service providers who use and run services under exchange rules.

DESIGN PRINCIPLES

These seven design principles will be common to all ITEGA-sanctioned services:

1. PUBLISHER / USER INDEPENDENCE – (“Allow silos to continue”)

- **CONSIDERATIONS:** The same way that a merchant’s decision to accept Visa or MasterCard does not preclude accepting other forms of payment, including the merchant’s own in-house credit card, the ITEGA should not in any way prevent a publisher from continuing to use any other technology or service of the publisher’s choice.

REQUIREMENTS: The ITEGA design must not prohibit or prevent publishers or users from using their own information exchange or value exchange mechanisms outside the ITE. Nothing will restrict or inhibit a participating affiliate or publisher from continuing to operate within their own or other’s user-management or value-exchange sharing services. A good analogy might be to a department or big-box store that accepts Visa or Mastercard from casual customers, but also continues to offer its own store revolving credit card to its own high-affinity customers.

2. USER DATA SHARING AND FREEMIUM PRICING

- **CONSIDERATIONS:** In today's Web environment, "free" services have become the *defacto* standard because users are paying for these services with their data. In this sense personal data has become a very real "currency" whose worth represents a significant portion of the \$60B digital advertising market. However the current market for "adtech" and "trading" in this information has enormous issues with regard to privacy, transparency, and lack of user permission, participation, or control.
- **REQUIREMENTS:** The ITEGA design must provide an opt-in mechanism for users to be able to share selected aspects of their user profile and/or usage statistics with either: a) ITEGA publishers directly, or b) ITEGA usage aggregators. This mechanism must also provide an explicit means of value exchange to reward users for sharing this information.

3. USER-CENTRIC IDENTITY

- **CONSIDERATIONS:** The burden of online login and account management is currently unmanageable for all but the most dedicated of users. The alternative—social login services such as those provided by Facebook, Google, Twitter, and others—has too many privacy and intermediation problems to be a sustainable solution for the ITGA membership.
- **REQUIREMENTS:** The ITEGA design must enable users to employ unique identifiers that that are universally recognized across the ITEGA ecosystem, but do not require centralized registry services. The ITEGA architecture must enable the user to authenticate the user's choice of unique, standard-format identifier to ITEGA publisher sites. This authentication must be able to meet system-wide identity levels of assurance (LOA) that also meet the LOA requirements of a specific ITEGA publisher. The ITEGA identifier architecture must enable users to control the levels privacy afforded by these identifiers in ITEGA interactions.

4. USER ANONYMITY / PROFILE SHARING

- **CONSIDERATIONS:** To gain marketer/advertiser participation, the Information Trust Exchange must support mechanisms for aggregating and sharing demographic, interest and preference data about individual users upon transparent terms acceptable to the individual. This calculus inherently raises issues of personal privacy for end users. Also, in the same way the non-digital economy supports cash purchases in which a buyer does not reveal any information to a seller, the ITEGA should enable purchases by users who choose not to reveal identity or profile information to a publisher. At the same time, ITEGA service providers who establish accounts and manage the persona and privacy of their users should be willing to share some demographic and interest information about their users to third-party publishers as a condition of those publishers being willing to provide services to those users – in both cases to enhance the user experience.
- **REQUIREMENTS:** The ITEGA sanctioned services should provide a standard mechanism for anonymous yet accountable purchases of content objects by ITEGA users. They should enable the serving of advertisements to individual users with specific interests within a cohort of other users – without advertisers or marketers having access to unique, personal identifying data about an individual user.

5. USER CHOICE OF ACCOUNT HOSTING

- **CONSIDERATIONS:** Users will not adopt an ITEGA network that locks them into a single account host provider any more than they would adopt a banking network that locks them into a single bank. Having a choice from a competitive marketplace of ITEGA account host providers is

as important as having a choice today of from a competitive marketplace of email account providers.

- **REQUIREMENTS:** The ITEGA design must allow users to choose how their ITEGA account will be hosted. Choices must include self-hosting and service provider hosting. For service provider hosting, the ITEGA design must provide options for both self-asserted assessment of compliance with ITEGA policies and reputation-based assessment. A user must be able to move (port) their ITEGA account and account data from one account host to another.

6. PRICING CONTROLLED BY CONTENT OWNER

- **CONSIDERATIONS:** The value of news objects (stories, video, multimedia) vary widely based upon their timeliness, topic, type (long, short, investigative, narrative, spot, trade, MST) and application. News objects increasingly are disengaged from publisher packages by aggregation and “atomization.” Therefore, royalty-owning publishers need a way to assign and transfer value (pricing) of individual objects across a sharing network. Royalty-pool models have largely failed because they remove the original publisher from value assignment.
- **REQUIREMENTS:** ITEGA-compliant services must respect the pricing set by originating publishers (at wholesale), while allowing the free assignment of pricing at the consumer (retail) level. design must enable content objects to be sold on a bundled, subscription or a la carte basis. Content objects she be able to be made available on a bundled, subscription or a la carte basis, charge or free, as the owner wishes. It follows that publishers using ITEGA services be willing to sell information resources to anonymized incoming casual or “drive-by” users (a la “newsstand customers”) at a reasonable price they establish, without having to know the identity or detailed information about these “guest” users.

7. USAGE BILLING AND SETTLEMENT

- **CONSIDERATIONS:** The overhead and friction of maintaining multiple payment options across multiple sites is currently prohibitive to all but the very largest publishers and payment service providers. Therefore it is paramount that the ITEGA offer a network-wide alternative that reduces the costs and friction of all ITEGA payment options to an absolute minimum.
- **REQUIREMENTS:** The ITEGA design must provide a standard mechanism for billing users for the content objects a user has consumed during an accounting period, and for settlement of a user account at the end of an accounting period. This billing and settlement mechanism must be as lightweight and low-friction as possible for both users and publishers.

C. Operating strategies

OPERATING ASSUMPTIONS

The ITEGA adopts these four strategic assumptions about Exchange operating capabilities:

- Content originators will be able to set their selling price at wholesale in a free market for digital information, and subscription bundlers and aggregators will take business risk (and opportunity) at retail. A royalty-pool model similar to ASCAP or BMI in music is not sufficient for an exchange

where object value varies widely as to purpose and characteristics. (Magazine vs. news, long vs. short, investigative vs. spot news, video vs. text)

- The exchange will support at least three forms of value exchange: (1) subscription bundles of content from multiple wholesale sources (2) Per-click purchase of individual objects where buyer's credit is verified (3) Rewards to end users, directly or indirectly, for their attention to commercial messages.
- To facilitate marketer/advertiser participation, the exchange will support mechanisms for monetizing personal data, so that "freemium" is an included business-model type. However, the Exchange will enforce transparency and choice and control for end users in managing their personal data, which will be clearly defined.
- There will be no central repository of personally identifiable information. Records of exchange-facilitated activity will be aggregated, reported to content providers and service providers, as permitted and required for business purposes, including value exchange, and not retained by the Exchange. As a design goal, the Exchange will not have access to unencrypted personal information about users. Users can choose among competitive service providers based on a level-playing field negotiation of their respective privacy-management offers.
- Similar to the early days of the bank / credit-card system, the network must be overseen by a non-governmental authority on behalf of the public and private -- and competing -- parties. The ITEGA will define rules for the competitive exchange of both content and users' identity information.

OPERATING PRINCIPLES

A key operating principal of ITEGA:

If your enterprise want to "own" and get data about a user, you have to maintain an account relationship with them which makes you accountable both to them and to the ITEGA's rules. Otherwise, they are anonymized to you as a content-vending publisher. You know only their service class, their home-base service provider and perhaps some other attributes shared on a "permissioned" basis.

Other operating principles:

- **STANDARDS** -- While the number and independence of original news producers is an important element of a diverse press, the lack of collaboration on digital-media standards for sharing users and content value is impairing support for journalism. Collaboration on network sharing protocols and business rules is therefore essential to sustain competitive, independent journalism.
- **PRICING** -- The value of news objects vary widely based upon their timeliness, topic, type (long, short, investigative, narrative, spot, trade, MST) and application. News objects (stories, video, multimedia) increasingly are disengaged from publisher packages by aggregation and "atomization." Therefore, royalty-owning publishers need a way to assign and transfer value (pricing) of individual objects across a sharing network. A royalty-pool model fails because it removes value assignment from the original publisher. Consequently, a system must respect the pricing set by originating publishers (at wholesale), while allow the free assignment of pricing at the consumer (retail) level. Content objects must be available for sale on a bundled, subscription or *a la carte* basis.

- **PRESERVE SILOS** -- Nothing will restrict or inhibit a participating affiliate or publisher from continuing to operate within their own or other's user-management or value-exchange sharing services. A good analogy might be to a department or big-box store that accepts Visa or Mastercard, but also continues to offer its own store revolving credit card.
- **PRIVACY** – To gain marketer/advertiser participation, the Information Trust Exchange must support mechanisms for aggregating and sharing demographic, interest and preference data about individual users upon transparent terms acceptable to the individual. This calculus inherently raises issues of personal privacy for end users.
- **REMOTE USER SERVICE** – Publishers using the ITEGA system will be willing to sell information resources to anonymized incoming casual or "drive-by" users (a la "newsstand customers") at a reasonable price they establish, without knowing the identity or detailed information about these "guest" users.

PROFILE DATA SHARING – ITEGA service providers who establish accounts and manage the persona and privacy of their users will be willing to share some demographic and interest information about their users to third-party publishers as a condition of those publishers being willing to provide services to those users.

OPERATING REQUIREMENTS

These operating requirements are proposed and sought as consistent with the strategic assumptions and design principles and should be part of ITEGA-sanctioned operations and specifications:

- **EVENT LOGGING** -- Every HTTP action across the network that involves an exchange of value (a payment for an article or a reward for viewing or doing something) is logged to an authentication and logging service, which is seen by the system participants as a "central shared service" -- although in network practice it may be distributed and hierarchical as with Domain Name Service.
- **USER NETWORK OPACITY** – An ITEGA-sanctioned logging service knows the user only by a unique alphanumeric identifier supplied by the user's "home base" registry service at the start of that particular session. They operate as agents, auditors and fiduciaries of publishers and user-registry services. As a matter of policy, ITEGA-sanctioned logging services shall not sell or provide clickstream data to ANYONE and provides it only to the user's home service provider for their purposes (and for audit purposes to the publishing content provider if requested). The identifier -- to anyone other than the home base itself -- reveals nothing more than the identity of the user's home base.
- **SERVICE-PROVIDER CHOICE** – There should evolve a plurality of home-base account managers in the service (as there are thousands of home bases in Shibolet/Internet2), providing end users a high degree of choice regarding business terms, especially as to identity and privacy.
- **VALUE AGGREGATION/SETTLEMENT** -- At settlement time, the settlement service bundles event records -- sorted by home-base of the users on the one hand and by the vending publisher on the other hand -- and determines an aggregate debit or credit to charge the home base and an aggregated credit or debit to charge the publishers (note that a "publisher" could be a brand which is paying for a user to view a commercial message). This all is done periodically -- daily,

weekly, monthly -- probably weekly in prototype – in reference implementation across the bank ACH network.

- **DISTRIBUTED DATA CONTROL** -- The home base gets these bundled log reports and is free to sort them or use them as they wish (subject to their terms of service with the end user as to usage and privacy protection or not); in some cases there may be a discrete charge or payment to the end user for a particular access; in the vast majority of cases, one supposes, the home base will use the click-stream reports for demographic, marketing and business-model analysis but the end user will merely be paying a monthly subscription for some class of service.
- **AUDIT CAPABILITY** -- The publisher (or information service provider), also gets bundled log reports of total usage so they can audit their payment or receipts, and the only sorting they are capable of doing is by the source of the end-user (i.e., their service-provider ID). Conceivably they might have methods to associate these anonymized usage reports to specific users, but the ITEGA would be in the business of making business rules governing this practice and the rules would be enforceable by anything up to the ultimate sanction -- cutting the offending information service provider off the system.
- **ENFORCEABILITY** -- The provision for non-regulatory sanctions is one of the reasons why the governance and ownership of the service is so critical. The sanction of a network cutoff decision has to be the result of well-documented interchange rules (consider Visa as a model in this regard), and the entity making the decision has to have no competitive business interest one way or the other but rather an interest in the fair administration of the service and due regard for evolving identity and privacy rights of end users. Hence, the need for a non-governmental and non-investor-owned entity with a mission to efficiently oversee and operate a service and not profit from it. Profit is for the publishers and service providers who use the service.

OPERATING FEATURES

- 1) Every click across the network that involves an exchange of value (a payment for an article or a reward for viewing or doing something) is logged to an authentication and logging service, which is seen by the system participants as a "central shared service" although in network practice it may be distributed and hierarchical as with DNS.
- 2) The logging service knows the user only by a unique alphanumeric identifier supplied by the user's "home base" at the start of that particular session. As a matter of policy, the logging service shall not sell or provide clickstream data to ANYONE and provides it only to the user's home service provider for their purposes (and for audit purposes to the publishing content provider if requested). The identifier -- to anyone other than the home base itself -- reveals nothing more than the identity of the user's home base.
- 3) There may be a plurality of home-base account managers in the service (as there are thousands of home bases in

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Shibboleth/Internet2), providing end users a high degree of choice regarding business terms, especially as to identity and privacy.

- 4) At settlement time, the settlement service bundles all the clicks -- sorted by home-base of the users on the one hand and by the vending publisher on the other hand -- and determines an aggregate debit or credit to charge the home base and an aggregated credit or debit to charge the publishers (note that a "publisher" could be a brand which is paying for a user to view a commercial message). This all is done periodically -- daily, weekly, monthly -- probably weekly in prototype -- across the bank ACH network.
- 5) The home base gets these bundled log reports and is free to sort them or use them as they wish (subject to their terms of service with the end user as to usage and privacy protection or not); in some cases there may be a discrete charge or payment to the end user for a particular access; in the vast majority of cases, one supposes, the home base will use the click-stream reports for demographic, marketing and business-model analysis but the end user will merely be paying a monthly subscription for some class of service.
- 6) The publisher (or information service provider), also gets bundled log reports of total usage so they can audit their payment or receipts, and the only sorting they are capable of doing is by the source of the end-user (i.e., their service-provider ID). Conceivably they might have methods to associate these anonymized usage reports to specific users, but the ITEGA would be in the business of making business rules governing this practice and the rules would be enforceable by anything up to the ultimate sanction -- cutting the offending information service provider off the system.
- 7) The provision for non-regulatory sanctions is one of the reasons why the governance and ownership of the service is so critical. The cutoff decision has to be the result of well-documented interchange rules (consider Visa as a model in this regard), and the entity making the decision has to have no competitive business interest one way or the other but rather only an interest in the fair administration of the service and due regard for evolving identity and privacy rights of end users. Hence, the need for a non-governmental and non-investor-owned entity with a mission to efficiently oversee and operate a service and not profit from it. Profit is for the publishers and service providers who use the service.

ITEGA-sanctioned systems should also facilitate:

- Technical protocols for sharing users, content and payments
- Control for users over their demographic, financial and personal data
- Other features proposed at ["Blueprinting the Information Valet Economy."](#)

System attributes

- A. Visa/telco analogy
- B. Some specific system elements
- C. Two stakeholder groups

Networks tend to develop as silos and then interconnect because of the resulting efficiencies for their users. Railroads developed a standard gauge and connected their tracks so freight and passengers could move in an uninterrupted fashion. Continental

Nothing will restrict or inhibit a participating affiliate or publisher from continuing to operate within their own or other's user-management or value-exchange sharing services.

power grids use the rate of phase change of their alternating current (60 cycles) so they can share electricity back and forth.

Banks who once had independent ATM networks now allow their users to withdraw funds globally (OK, for a fee, but the technology is standardized) because getting at your dollars in Massachusetts converted to Euros when you are in Prague is a real convenience, even if it costs \$3.00 to do so.

These are “shared-user” networks – railroads, power grids, bank ATM networks – because they allow the sharing of goods and services without technical barriers – and in the case of the ATM networks, the sharing of users. But right now, when you log into a website to transact, it’s a one-off relationship; each website with a different account. That’s not so bad for commerce, but when it comes to buying information of small value, it’s a terrible impediment. We have a separate log-in for each news or timely information source we visit, if they require a subscription. That’s just not user friendly.

So on the web, a shared-user network will allow users to have one account, one ID, one password (or set of authorizing identity credentials) and one bill, and have access to multiple resources from different sites or applications. The network will have rules which govern:

- Trust – So you know the service you’re using is reliable and credible.
- Identity – So the information providers you access know enough about you to be able to provide you the right information at the right time for the right price.
- Privacy – So you can be in control of how information about you and your interests is stored, shared and used, and by whom and for what purpose.

Information Commerce – So that participating information providers can establish their own pricing for their services, and can sell those services on the network without having to establish a one-to-one relationship with you as user. Your credentials will be vouched for by the network and the network will assure payment.

If a publisher chooses to become a service provider, then they get access to all of the activity of their OWN users across the network, giving them, in effect, "First Party" data vastly broader than they have access to today -- but only for those people they have account relationships with. This provides a hook for accountability as to use of personal data, and a hook that can be audited by the ITEGA administration if necessary.

- 1) System tracks all clicks (that involve value exchange) in background, aggregating them, settling aggregated value exchange.
- 2) Each user service provider gets clickstream data about their users which it can use subject to Terms of Service with the end user. Their TOS is auditable and enforceable by the ITEGA as a condition of system membership.
- 3) Publishers (content providers) do NOT get identifiable information about any user (at least not from this system); they just get assurance that the person is authorized to view the resource requested and that, if money is involved, the money is going to be handled and they will get or give what they expect.
- 4) This does not stop publishers from setting their own cookies or doing other things to identify users, unless or until the Information Trust Exchange prohibits such behavior as a condition of membership.

NINE OPERATING FUNCTIONS

Here are nine expected operating features of ITEGA-compliant services which should be enabled and supported by the operating requirements:

- **NETWORK SUBSCRIPTIONS** – The service should allow publishers to be paid for providing digital content across an ITEGA network without having to have one-off relationship with each reader/user.
- **DYNAMIC SERVICING** – Publishers offering their content should have real-time personal, demographic, preference or interest attributes of a user/reader at the time the user makes an online/mobile request for information, so they can respond with targeted, customized messages or services.
- **MICROACCOUNTING** -- Publishers should not be required to participate in operations which “pool” royalties. Rather, a feature of the service should be census-type (vs. polling, pooling or sampling) logging and aggregation of billable content requests, with clearing-house settlement of payments and credits among publishers and user-account managers.
- **WHOLESALE-RETAIL PRICING** – Publishers shall be able to use one or more methods to establish the price they wish to receive (and be assured of payment) for a discrete digital object (or bundle), and be able to vary that price dynamically in real time based upon the attributes of the user requesting the object.
- **ONE BILL/ACCOUNT** –The service will enable a user/reader to have one bill/one account/single sign-on access to information from (virtually) anywhere, by subscription or by click/action?
- **UNIVERSAL TRACKING** – In order to gain the participation of publishers and advertisers, the system will enable a user’s activity to be tracked across the ITEGA network and that activity aggregated – only -- to the user’s home-base service provider for billing and analysis – contingent upon explicit permission of the user.
- **CONTENT PACKAGING** – In order to gain the participation of end users, publisher and billing-service users of the system should be able to facilitate custom assembly by the end user of information services from a variety of topical and geographic-oriented sources into personalized subscription packages.
- **FREEMIUM vs. FREE** – In order to gain participant of both privacy advocates and the advertising industry, the system should allow the public user to chose among a range of options from (1) no advertising and no disclosure or use of their tracked activity in a subscription-based approach to (2) receipt of highly customized commercial messages and the wide, background marketing of their information preferences in a rewards-based program approach.
- **SUBSCRIPTION OR PER-CLICK** – In order to satisfy the requirements of a plurality of publishers and service providers, the service should offer end users both sale or receipt of digital items within a pre-paid subscription package -- as well as being able to dynamically query the user if they want to purchase a particular resource on a one-time, one-item basis.

D. Operating technologies

Technology comprising an Trust Sharing Exchange Architecture (ITESA) is now described. It draws significantly upon the proposals of both Buzz Wurzer and Bill Anderson² in 2012 and 2013. In some ways, it is conceptually similar to Clickshare Authentication and Logging Service, described in two United States patents.³ It begins with a set of value propositions continues with functional specifications, and ends with build-out steps. What do we mean by a “shared-user network”? In Dec., 2008, a group of 45 news-industry experts met at the Donald W. Reynolds Journalism Institute and [collaborated on this definition](#):

A computerized, community-based ecosystem that enables consumers to opt-in to convenient, secure and private information exchange with trusted providers of online content, products and services where the relationship value of the consumer is captured and married to optimized positioning of seller offerings.

Components:

- Enrollment/registration processes that screen (and protect) users
- Creation of secure credential with user-set privacy levels
- Downloadable(?) single sign-on capability for participating sites
- User-created and updatable profiles of preferences, interests and demographics
- Certification of trusted providers and participants
- Ability to match dynamically-specified buyer interests with customized seller offerings
- Transparent payment capability with user-specified ways to pay
- User-defined rewards that can be collected among user-specified provider participants
- Visa-like payment engine/network/capability to slice-and-dice payments, establish and enforce rules, handle problems, service customers, provide reports, administer licenses/IP, etc.

PRIVATE VENDORS TO BUILD

The ITEGA premise is to define an architecture, create protocols and interfaces, and accompanying business rules -- then contractually partner with technology companies prepared to build ITE-compliant networks that share user data, content and payments. As the profit from the system is designed to go to the operators and affiliates rather than the ITE, we believe operators could feasibly finance their technology and infrastructure investment and pay network fees to the exchange.

The Information Trust Exchange, whether chartered as a non-profit association or a co-operative, would not compete with its members in news or advertising, because it is proposed not to be a direct operator of anything – rather, it will develop standards, protocols and business rules, and license operation of

² -- [Buzz Wurzer](#) is a retired Hearst Corp. executive; [Bill Anderson](#) is a retired Seattle SeaFirst bank CTO.

³ -- <http://tinyurl.com/2wtlpu> / <http://tinyurl.com/2ukwj4> / <http://tinyurl.com/csc-patent-2013> / <http://tinyurl.com/csc-patent-news> / <http://newshare.com/disclosure>

authentication and logging services – data exchanges – by one or more private, for-profit operators. The roles for ITEGA are set forth in Part 2, on Page 15. The will deliver for the public:

- **PRIVACY:** Protect, share demographic and usage data
 - **PERSONAL:** “Persona” yields custom information
 - **CHOICE:** Many “info-valets,” price/service competition
 - **RELEVANCE:** Ads more effective, direct compensation
 - **CONVENIENCE:** Easy sharing, selling, purchasing of online content; one ID, one account, one bill. . . .Result . . . TRUST.
-
- standardize the tagging, discovery and use of multimedia content.

NINE OPERATING MODULES

Nine modules comprise the essential operations of the Information Trust Exchange Sharing Architecture (ITESA) ecosystem:

- Three are shared services run for the ITEGA under contact by third parties.
- The rest are provided to ITEGA member publishers and service providers or by one or more technology vendors who are certified ITEGA technology members.

They may be prototyped by one or multiple partners, vendors or members. The eight are listed below, with preliminary information about perceived options as of January, 2017. A preliminary selection of best and alternative options for key operating technologies may be found at this link:

<https://www.dropbox.com/s/yoja7s1o9xe0zj7/ite-poc-testing-options-elements-v2-09-22-16.xls?dl=0>

THREE SHARED SERVICES RUN FOR ITEGA UNDER CONTRACT

1. **Network user authentication services** – This is a core feature of the ITEGA ecosystem – a method for “federated authentication” that allows an end user to be recognized and provided variable view, listening, access or payment rights and multiple independent web services. Over two decades, several well-understood, open-standard services have evolved for this purpose; ITEGA simply needs to select and enhance one with the ability to pass encrypted user data in standard formats.
2. **Event/access logging service** -- When an information resource is accessed by an end user – viewing an ad, reading an article, watching a video, listening to a podcast, an HTTP “event” is logged not only at the website providing the service, but also to a shared network service operated by one or more ITEGA-licensed vendors. This service is the second core component of the ITEGA shared-user network.
3. **Aggregation and settlement services** – The accumulated logging by the shared service of network events are sorted and aggregated by user service provider, by publisher or by data user (such as an advertiser or ad network) for settlement of debits/credits among the network members. Settlement is “notational” – it is not a banking or currency function. The results are both detailed and summary reports to publishers for royalty payments, and to service providers for purchase of content, for advertising charges and advertising revenue and to network participants who may be accruing transactional fees. Multiple examples of such aggregation and settlement services exist in banking, telecommunications, ad-tech, music and affiliate marketing and may be adapted to the ITEGA ecosystem.

SIX THIRD-PARTY SERVICES CERTIFIED BY ITEGA

4. **Advertising exchange service** – The just-announced TrustX service of the Digital Content Next trade association appears well positioned to disrupt the ad-technology stack with a non-profit service-bureau approach.
5. **A profile-exchange service** -- Enables access to and network sharing of user attributes for the purpose of determining types of services and their value to be provided to a user; and which is capable of varying services based upon such parameters as subscription-authorization levels and credit thresholds.
6. **Billing services** – Upon receiving notation of aggregation and settlement, publishers or service providers may direct bill or contract with agents to do billing. Multiple examples of such billing services exist in banking, retailing, travel and technology and one or more will be selected for the ITEGA ecosystem.
7. **Publisher content access control** – Offered by multiple vendors, or home-brewed by publishers, but dynamic pricing is rare and access options tend to be relatively inflexible. The challenge here is to build standards for cross-publisher interoperability and event reporting. Examples in news publishing include Clickshare, Piano Media and MediaSpan.
8. **End-user content personalization services** – With a few exceptions, such as Cxense and LifeStream/Taxonometrics personalization tends to be a direct-to-consumer service from tech platforms rather than a white-label provision for publishers.
9. **User identity data and privacy management** – This is new, emerging category that can be provisioned by publishers who wish to manage data and privacy for their users, or by specialty providers of this service such as RespectNetwork. The ITEGA ecosystem requires that use end user have one or more designated “home bases” that either manage profile and usage for them or allow them to do it themselves. The network then exchanges user-permissioned data.

Key requirements of the protocol and the network may be found in Appendix D.

COMMERCIAL RELATIONSHIPS

During Phase 2, ITEGA would begin to seek to license for-profit affiliate members who will provide these services at a Tier 1 level of authentication, to seed the network in the publishing space:

- Enable web users to access, share, sell or buy paid content from multiple sources by means of a secure account with a single ID, password, account and bill.
- Provide web users with absolute control over a digital identity with respect to accessing, sharing and purchasing news and information content, and other uses.
- Find, spotlight, aggregate and share content.

- Create a news social network that operates through news and information content web sites at all levels from local to international.
- Create a means to deliver contextually-relevant content recommendations to network members
- Provide easy, low-cost, copyright-respecting access to “Deep Web” and other content stored behind pay, registration, membership and once-proprietary barriers.
- Enable the delivery of precisely-targeted advertising and other commercial content relevant to a reader’s expressly shared demographic profile, social networking connections, ad content preferences and browsing history.
- Enable a system allowing ITEGA users to earn cash or rewards for engaging in a variety of potential interactions with commercial entities.

The ITESA creates the opportunity for a new kind of entity which would help consumers manage their personas across a variety of information services – some paid and some that pay, or reward.

TECHNICAL REFERENCES

1. Description of profile and content-sharing network

The ITEGA working document, “Technical description of a privacy-by-design customer profile and content sharing network” is a high-level narrative describing both system operation and proof-of-concept implementation and a diagram. A current version may be accessed from the following URL:

<https://docs.google.com/document/d/1cJ51LaL4aq0NZ77Jnkc4IXVqfihxvvi2VsEkzrHXZO/pub>

2. Services features and design specifications (Nov. 2015)

Following five task-group meetings during 2015, key members in November developed the document: “Information Trust Exchange Framework: Service Features and Design Specifications.” The advisory document assembled a series of service goals – and resulting design requirements broad enough in scope to encompass further refinement around specific technologies or services not envisioned at that time. The completed document may be access from the following URL:

<http://newshare.com/ite-next/ite-service-design-specs-v3-11-05-15.pdf>

3. Functional specifications for user data sharing

The ITEGA working document, “Functional Specifications for User Data Sharing,” proposes functional specifications for exchange of permissioned user data to support customized service of digital content – advertisements, stories or other services. A current version may be accessed from the following URL:

https://docs.google.com/document/d/1_n6swNv2bE7llM8F1uGaanyNOuAJohB88dwABF0Ab4w/pub

4. Working proposal for user profile attributes

The ITEGA working document, “User Profile Attributes” proposes an initial limited set of fields for exchanging use attributes across the ITEGA ecosystem. These consist of (1) Required user-supplied attributes (2) system-assigned network attributes (3) optional user-supplied demographic attributes (4) User expressed interest identities (5) Service preference-level attributes and (6) Active-inactive buyer tags. A current version of these profile attributes may be accessed from the following URL:

https://docs.google.com/spreadsheets/d/1i-7tEBGwqa7IUyFoworLEl4xIg1QeK_ryfVELS7NCbE/pubhtml

5. Proof-of-concept prototype elements

The ITEGA working document, “Proof-of-concept prototype elements provide a proposed phasing of elements of the ITEGA shared-user ecosystem. A current version may be accessed from the following URL:

https://docs.google.com/document/d/1UIuWk7c_opQHh15L8G9NhHCR7ADnyNN4NWUPZARmGiM/pub

The grid “Proof-of-concept test elements ranked, provides a list of 30 proof-of-concept test elements and ranks their priority for development. A version as of Sept. 25, 2016 may be found at this link:

https://docs.google.com/spreadsheets/d/1QJhrQZHduO5vGzXEg1ZPYS1mxxaK9XikZPCaVR_BGck/pubhtml



Project FAQ

1. **What are we trying to accomplish?** Make a marketplace for digital content -- convenient for the public, that allows personalization and respects privacy. A platform for content collaboration.
2. **Who are the customers?** B-to-B: Primary: News and digital content originators; Secondary: Advertisers, telcos, cable companies, retailers, associations. Goal: Help them deliver an incredible user experience through greater personalization and trusted privacy and identity management.
3. **Who are our partners?** Technology and publishing companies who will join the ITEGA and provide ITE-complaint services.
4. **What do we do for our partners?** Foster creation of a platform that enables a marketplace for them to make money through advertising, digital content sales and transaction fees.
5. **What is the role for RJJ?** Provides ideas and contracted support services as requested by the ITEGA board.
6. **What is the solution?** Based on 2011 and 2015 research reports, and O'Hare gathering proposed solution is a non-profit consortium which develops business rules and technical/design specifications for a "shared-user network for trust, identity, privacy and information commerce." Elements include:
 - a. One-ID, one-bill account
 - b. Choice of service providers
 - c. Control of use of personal information
 - d. Personalization options for content and ads enabled by vendors
 - e. *A la carte* and bundled content purchasing; competition in pricing.
7. **What will sustain the ITEGA governing organization?** Initially grants, then membership dues, then license fees from operators of network services (authentication, logging services).

Q. Why does this have to be nonprofit?

The shared-user network is not intended to be nonprofit. In fact, the idea is to enable a vast new digital marketplace for information sharing and sale. But this author came to the conclusion several years ago that there wouldn't be any one stock public-stock company that would be able to mount a credible management of this solution in the environment -- because everybody would want to compete with it. Nobody wants to go through a gatekeeper who has the ability to destroy their business. And so it makes it clear that what's needed is a system that allows multiple user owners and multiple and facilitates multiple subscription and payment schemes.

Q. How would you sustain the project after the funding expires?

A broadly-used shared-user network which enables a commercial exchange of value for advertising, news and other content could institute interchange fees similar to the Visa or MasterCard model which would readily sustain the oversight role of the Information Trust Exchange. Commercial operators of the network infrastructure, authorized by ITE, would be free to establish in the free market appropriate charges for their services. At no time would the ITEGA be involved in pricing or service offerings of the users of the system. It would only require income sufficient to maintain its business-rules and operating-protocols oversight role.

Q: What is required to build a shared-user network for the web?

Building the shared user network will require three activities, running in parallel, taking perhaps a year. This work could be coordinated by a contractor to the Information Trust Exchange.

Establish business rules and technical protocols governing the exchange of information among four parties to the network – (1) information seekers and their agents, (2) information providers, (3) marketers or advertisers and their agents; and, (4) The network operator or operators. The convenor of Information Trust Exchange could be funded to do this work.

Build and deploy an authentication and logging service that will allow parties to (1) exchange credentials about information seekers (2) Exchange transaction offers and acceptances (3) record and aggregation transactions for periodic settlement. Vendors could be asked by the convenor of the Information Trust Exchange to bid on this work, in exchange for a multi-year system operating contract.

Build and market software to operate on the servers of information providers as well as the agents of information seekers that is compliant with the business rules and technical protocols of the network as defined by the ITE. Vendors would do this work on a business basis.

Q: How will this shared-user network meet the needs of key stakeholders?

There are three distinct customers of the shared-user network (“network”):

1. Information seekers (and their agents) – The network gives information seekers the ability, in a trustworthy environment, to acquire information, or be paid for their attention, conveniently and without having to manage multiple accounts, passwords and interfaces. It gives them the choice, however, to affiliate with as many information agents (“InfoValets”) as they like, just as we may have more than one credit card.

2. **Information providers** – The network gives information providers the ability to make money by selling their content to a universe of users beyond their own, without the expense and time of enrolling each of them. It’s like a store that accepts a Visa or MasterCard instead of having to establish their own siloed charge-card system. In addition, they can have a uniform means to acquire demographic and preference information about users in real time as a part of a digital-information sale (assuming this is authorized by the information seeker).

3. *Advertisers and marketers* – *The network provides an efficient, common gateway to serve native-format advertising to anonymous yet demographically targeted users, where these users are known across a plurality of websites and the targeting of them is permissioned, transparent and governed by industry rules rather than the government regulation feared by many, including former Grateful Dead lyricist and [Electronic Frontier Foundation](#) co-founder John Perry Barlow in his [“Declaration of the Independence of Cyberspace.”](#)⁴*

⁴ -- In Nov., 2014, Perry recorded a [video reading](#) of his 1996 “declaration” at Davos.

APPENDIX B

PRICING – WHOLESALE-RETAIL

A frequent question posted by interviewees in the 2015 report, [From Personal to Payment](#), involved pricing. If news organizations are going to share users, and share content, who is going to be in control of pricing? (See Exhibit O) The answer: No one person or entity. Some examples:

- Airlines benefit from a common air-traffic control system and they share airports. They fly similar aircraft made by the same companies. But they compete on pricing, many routes, and most aspects of service.
- Thousands of companies float their stock on major exchanges. The price of their stock is subject to near absolute competition for investors' dollars. Yet they also use common bidding, trading and settlement systems.
- Online advertising exchanges work in milliseconds with demand-side and sell-side platforms to match willing advertisers with willing publishers and aggregators to deliver "impressions" to interested consumers. Prices range dramatically, as do the content and form of the advertisements.

As the profit from the system is designed to go to the operators and affiliates rather than the ITE, we believe operators could feasibly finance their technology and infra-structure investment and pay network fees to the exchange. Thus our premise is that infrastructure and other startup costs born by the ITEGA manager will be less than \$2 million. "The thing is if you get this up and going one could actually turn to venture capital firms to expand the market once the idea is well put together," says Robert Picard, of the Reuters Institute. "That is not an impossible idea. The infrastructure that goes behind it could be completely commercial. It could be newspaper and news organizations or media investors."

But what if you added to the mix the idea of wholesale-retail pricing, just like in the real world? If General Electric Co. makes a toaster oven and sells it to Wal-Mart Stores Inc., Wal-Mart then decides how to price the toaster. Think of the Internet market for information as like a Wal-Mart store. The retailer – your preferred publisher or service provider – is responsible for billing you and paying for what you buy from his or her store. Then, they go pay the originating publisher – the wholesaler – for the items you

When you click on that article as a *New York Times* user, the exchange should record a payment to *Le Figaro* of five cents and record a charge to *The New York Times* of five cents. But whether you as a consumer ever pay anything other than that extra \$1 - ought to be up to *The New York Times*.

purchased -- to make up your personalized information bundle. And imagine, as with the advertising exchanges, that this happens instantly. The originating publisher, if it knows something about you, might vary the offer (price and terms). Your home-based publisher, the retailer, might chose to give you some of the items as part of a package, and ask you to pay for other pieces a la carte. Unlike Wal-Mart, the inventory of a digital information retail store doesn't need to be shipped or stored in bricks-and-mortar fashion. It can be sought, priced, sold and consumed in milliseconds.

All that's needed to make such a system work is a standardized method – a set of protocols – for

exchanging information about users and logging -- to a common place -- the cost of what is purchased. A useful feature might be the ability to aggregate many small purchases that are charged periodically – making efficient use of financial-transaction networks like the bank [Automated Clearing House](#) (ACH) networks and avoiding relatively steeper credit-card interchange fees.

Imagine this scenario: *The New York Times* might send you an email and say for an extra \$1 a month, you get 10-15 clicks per month from a set of French language publications. It's just \$1 a month and you'll have that Francophile bonus. What would happen when you click to an article at *Le Figaro*? They would have some price they had set on that article – maybe it is five cents (converted from Euros). When you click on that article as a *New York Times* user, the exchange should record a payment to *Le Figaro* of five cents and record a charge to *The New York Times* of five cents. But whether you as a consumer ever pay anything other than that extra \$1 -- ought to be up to *The New York Times*.

If you have a system where the parties on a business-to-business basis agree to pay the cost of people surfing within the system, then all it becomes is a strategic business exercise how much *The New York Times* should charge you per month. *The Times* might do this for awhile and find they are losing money by just charging you \$1 a month, so they might come back to you and raise the package to \$2 a month. Or maybe it has a cap on it of 30 clicks per month -- then you have to pay more.

One can't presume to guess how all those things will work out. What we need to create is a system that enables all of that and then allows the free market to operate as it does so well -- which is to have pricing and packages find their equilibrium. What is described is a free market for digital information – a [economic libertarian's](#) delight! But don't we need to start by enabling those kinds of capabilities?

Apple is not going to play in a new ITEGA ecosystem if that ecosystem requires the company to shut down the iTunes store or alter how it operates. Ditto with Amazon and with Facebook Credits and Connect. The ITEGA protocols have to be additive to these business – a way for them to expand from their three-party services into a true, four-party trust network.

APPENDIX C**Technical Appendix:
Protocol requirements
Reference links****PROTOCOL REQUIREMENTS**

The ITEGA protocols must support:

- Standardized transfer of a unique, non-repudiatable user identifier, assigned by a USP, in real time, when a user makes an HTTP request to a CP across a TCP/IP public network, for a unique resource.
- Standardized transfer of a set of end-user attributes, along with the above request, sufficient to permit decisions to authorize or deny access to resources based on a variety of parameters, such as a subscription, ability or willingness to pay, age, membership or the like.
- Real-time query and reply to confirm desire of the end user to acquire the resource based upon its cost, value or other attributes.

In summary: The end user becomes a subscriber to an individual exchange member's news service and from then on the consumer can access any content in the exchange's repository or on the servers of other exchange-member content providers.

ITEGA-compliant networks should support:

- Real-time authentication back to their USP of a user's credentials and rights upon making a resource request of a CP and prior to serving the request, whether the request is to the CP's servers or to any Network Content Repository (see below).
- Logging of services provided by unique user, resource provided, and any negotiated and confirmed value of the event. The event could involve serving news content, or sponsored content ("advertising") with the value exchange recorded in either direction.
- A provision (internal or outsourced) for storing and indexing news content uploaded by members in any Network Content Repository.
- The ITSA network services includes programs that:
 - a) Store and index news content
 - b) Distribute messages about the content to the members
 - c) Control access to the content, allowing for news search, accounting for each individual access, accounting for the due-from and due-to payments cycle and act as the intermediary to an all-new internet payments system.

Information about end-user identities are known only to the end-user's service provider (USP). The network system only knows users by a standardized unique alphanumeric identifier.

In summary: The end user becomes a subscriber to an individual exchange member's news service and from then on the consumer can access any content in the exchange's repository or on the servers of other exchange-member content providers.

The ITEGA infrastructure takes care of all the accounting needed to get the payment from or credit to the consumer's home-base service provider to the appropriate content provider (publisher or advertiser) through a process of periodic aggregation and settlement of transactions. the original content owner (or the payment from the advertiser to the end-user's service.

Building a user "persona" and content attributes

The network protocols and business rules specify attributes and three areas:

- A. User identity and profile attributes
- B. Tagging of digital content for pricing and royalty management
- C. Tracking and settlement of value exchange (payments, credits)

Higher tiers of authentication would involve collaborations within the health-care industry, banking industry and government, among others.

KEY FIELD ATTRIBUTIONS

A. User identity and profile attributes

ITEGA networks facilities the transfer of the following identifiers for each request made by a user for resources across the network:

1. Network-level attributes (accompany all requests)

- a. UserID – A globally unique attribute which includes the user's home-base host ID. This is the minimum attribute necessary to log access records for payment or credit and is analogous to a credit-card number.
- b. One or more customer-group codes to identify user assignment to specific groups for publisher- or service-provider proprietary purposes.
- c. A service-class to define eligibility of the user for specific levels of pricing, content or services
- d. The content server ID of the publisher supplying content and optionally requesting a royalty payment ("PubMbrID")

2. Preference-level attributes (accompany and constraint all requests)

- a. Other flags regarding preferences for: (a) privacy (b) parental control (c) advertising viewing preference (d) do-not-track

3. Identity attributes (optionally shared with request)

- a. Identity attributes available for sharing (or not) depending upon privacy preference (above), include user-supplied nickname, email, fullname, date of birth, genderl, postal code, country, language and timezone

4. Business attributes (optionally supplied with end-user permission)

- a. A vending publisher may request other business attributes of the person and the person's home base may or may not supply the attributes based upon the user's expressed privacy preferences. The attributes may be stored and supplied in formats developed by Schema.org (<http://schema.org/Person>)

5. EduPerson attributes (optionally supplied with end-user permission)

- a. A vending publisher may request other Internet2 "eduPerson" attributes of the person and the person's home base may or may not supply the attributes based upon the user's expressed privacy preferences. The attributes may be stored and supplied in [formats developed](http://www.internet2.edu/media/medialibrary/2013/09/04/internet2-mace-dir-eduperson-201203.html) by Internet2:
<http://www.internet2.edu/media/medialibrary/2013/09/04/internet2-mace-dir-eduperson-201203.html>

6. Interest identities and topics

- a. A vending publisher/marketer may request from the user's home-base service provider attributes related to any topical "interests" and "identities" stored in the form of key words or phrases depending upon the user's privacy preference.

B. Digital content tags for pricing or royalty management

The ITSA also will provide a schema for vending publishers to XML-tag royalty- or price-identified content which will be recognized and respected by user service providers, and logged as necessary for financial settlement. **Thus content can reside anywhere on the network and the rights owner will be paid for use.** Among basic content attributes are:

1. The creation date/time in YYYYMMDDHHMMSS format.
2. An expiration date supplied by the original content producer in the same format.
3. The PubMbrID of the creator or publisher entitled to royalty or payment.
4. A optional Digital Object Identifier (<http://doi.org>)

C. Tracking/settlement of value exchange

Finally, the ITSA provides a schema enabling the negotiation and computation of value exchange. The table invoked will depend upon whether the resource is chargeable content, or sponsored content (including advertising).

5. A variable table of royalty payments (or a key to a master royalty-payment schedule) used to compute the charge to the user's service provider upon the digital vending of the resource depending upon use, service class and other custom factors.
6. A variable table of credits paid to user's service provider upon the end user's viewing of a digital resource, depending on level of use or interaction.
7. A retail "Markup Ratio" in use by the User Service Provider which is provided to the content-serving publisher in real-time so that if the end-user is to be shown the object's price before purchase, the price show will be "retail" not "wholesale." (*See Appendix B*)