



**THE INFORMATION TRUST EXCHANGE**

**Trust, identity, personalization,  
content and user sharing for the news industry**

**Service Features and  
Design Specifications**

*(DRAFT, v3.0 09-12-15 BD-RG-BD) (EDITABLE)  
(incorporates "Service Features" elements doc 6-9-15)*

*This WORKING document assembles a series of service goals – and resulting design requirements -- for an ITE network. Care has been taken to be broad in scope, which leads to some overlapping aspirations. This document should be taken as an advisory resource by ITE task groups as they develop Functional Specifications within their scope. It may also be used by enterprises who may be considering operating services under contract to the ITE governing authority, or considering prototyping of ITE-compliant services.*

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## **WHAT THE ITE DOES**

Without encroaching on individual franchises, the Information Trust Exchange (ITE) serves as an information-industry collaborative connecting news enterprises and news consumers. It defines and governs a layer of network protocols for sharing user authentication, profile sharing, copyright payments and billing. Similar to the bank / credit-card system, the network is overseen by a non-governmental authority on behalf of private -- and competing -- parties. The ITE makes rules for the competitive exchange of both content and users' identity information.

A consumer user should be able to have one account, one ID and one bill with which to acquire a wide variety of content from multiple, otherwise independent sources. A content provider should be able to establish and vary pricing for discrete information objects in real time based on the the user's identity, relationships and use. A service provider should be able to make money by purchasing content at lower wholesale prices and reselling it at higher retailer prices to its users, managing the spread as a business exercise. An advertiser should be able to precisely reach relevant consumers with a personal message, and should be able to reward the user's service provider -- and even the user directly -- for the privilege of delivering the message.

## **WHAT THESE DESIGN SPECIFICATIONS ADDRESS**

- Enrollment/registration processes that screen (and protect) users
- Creation of secure credential with user-set privacy levels
- Server software for single sign-on/logging capability run on 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.

The Information Trust Exchange establishes and maintains voluntary standards for sharing user information and commerce across TCP-IP networks. The elements of the ITE are:

### **A. THREE-ELEMENT CORE STRUCTURE**

The ITE service has three top-level components:

1. **GOVERNING AUTHORITY** -- The Information Trust Exchange Service Association -- A non-stock, public-benefit, member organization which licenses operators of the ITSA Network and develops and maintains ITSA Protocols.
2. **ITSA 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).
3. **ITSA NETWORK** -- A special-purpose network that securely transfers information among and between network members, including content providers, end-user service providers, network operators and network service providers. Operating commercially by contractors to the ITE Governing Authority.

## **B. STRATEGIC ASSUMPTIONS**

1. **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.
2. **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.
3. **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.
4. **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.
5. **REMOTE USER SERVICE** – Publishers using the ITE 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.
6. **PROFILE DATA SHARING** – ITE 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.

## **C. OPERATIONAL REQUIREMENTS**

1. **NETWORK SUBSCRIPTIONS** – The service should allow publishers to be paid for providing digital content across an ITE network without having to have one-off relationship with each reader/user.
2. **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.

3. 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.
4. 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.
5. 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?
6. 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 ITE 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.
7. 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.
8. 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.
9. 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 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 Shiboleth/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 ITE 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.

## **E. TECH DESIGN REQUIREMENTS**

### **BEDROCK FEATURES:**

- i. Single-signon facility
  - ii. Data exchange for user-identity information
  - iii. Payment exchange for advertising and content value
  - iv. Ensures market competition on price, service, terms
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 that user which it can use subject to TOS with the end user auditable and enforceable by the ITE 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.
5. 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 hierarchal as with DNS.
6. 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, it 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 to anyone else in the system other than the user's home base account manager.
7. Create 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).
8. Provide a special-purpose network that securely transfers information among and between network members, including content providers, end-user service providers, network operators and network service providers.
9. Standardized transfer of a unique, non-repudiable 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.
10. Support a real-time query and reply to confirm desire of the end user to acquire the resource based upon its cost, value or other attributes.
11. 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 the Network Content Repository.
12. 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.
13. A provision (internal or outsourced) for storing and indexing news content uploaded by members in a Network Content Repository.
14. The ITSA network services includes programs that store and index news content, distribute messages about the content to the members, control access to the content, allow for news search, account for each individual access, account for the due-from and due-to payments cycle and act as the intermediary to an all-new internet payments system.
15. Access identifiers, subscription numbers, financial transaction numbers, member addresses and identifiers are all new and have no equivalent in today's internet environment, rendering any sort of tracking by unauthorized spy programs impossible.

## **F. BUSINESS REQUIREMENTS**

### **1. Revenue Streams – Consumer direct**

- a) 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.
- b) Content sold at wholesale and subscriptions sold at retail -- is where the business opportunity lies -- arbitraging the cost of content against the subscription charge.
- c) 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.
- d) 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; 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.
- e) 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 ITE 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.
- f) It also creates a platform for affiliates to respond in a customized, personalized way to information requests, because it makes it possible for the user to offer their preference information when making an information request.
- g) For publishers, it creates the possibility of subscription networks through background "microaccounting" for cross-site exchanges of value and payment.
- h) The ITSA infrastructure takes care of all the accounting needed to get the payment from the consumer to the original content owner (or the payment from the advertiser to the end-user's service provider) with all of the intermediaries along the way getting their pre-agreed-to cut.

### **2. Revenue Streams -- Advertising / "advisortising"**

- a) For advertisers, it solves the problem of multiple identities for the same person, without them having to maintain any personally identifiable information or be beholden to one or two huge platform operators who hold master user account.

- b) Create online advertising exchanges to 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.
- c) Establish a process for wholesale and retail pricing. 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 purchased -- to make up your personalized information bundle. 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.

## **8. Marketing strategy / B-to-B and B-to-C**

- a) The ITE will license for-profit affiliate members who will provide services to seed the network in the publishing space.
- b) An important design criteria for the protocols – nothing should stop a participating affiliate or publisher from continuing to operate within their silo. The ITE 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.

## **9. Privacy/demographics/identity**

- a) 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 ITE administration if necessary.
- b) ITE protocols define, use/ownership/custodianship of personally-identifiable information (PII)
- c) There may be a plurality of home-base account managers in the service (as their 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.
- d) Protocols describe framework for valuing exchange of personally identifiable information.
- e) Ceate a framework for rules (example: [OECD Privacy Principles](#))
- f) Enable multiple ways to create personalization of content preferences including a mixing and matching between inferred and expressed preferencing.
- g) The ITE protocol will create 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. The success of all kinds of loyalty programs are a proof-of-concept for this kind of information persona management.
- h) Allow the transfer of that personalization information across multiple services and uses, so your persona is not siloed in one place and is able to be shared across the web as much



-- or as little -- as you choose.

- i) It will create the opportunity for access to lots of information resources with a single ID, password and account. But unlike proprietary services such as iTunes or Facebook Connect, the customer will be able to choose among a plurality of service providers who can compete over financial and privacy terms.
- j) The notion of a network with millions of personas – distributed, but shareable with user consent -- could be enabled by an ITE that establishes opt-in rules and protocols. These would permit thousands of “information valets” – or identity service providers -- to operate as competing, trusted brokers, agents, advisors or curators of information for consumers. These are places where you can lodge your persona – or one of your multiple personas. You might have one persona with your health insurance, another with the social-security administration, another with your news purveyor, you might have another with a particular retailer and one with your bank or financial-service provider.
- k) The only thing the network protocols might specify is a common set of rules for exchange of persona attributes -- rules within the control and purview of the consumer and enforceable by the ITE.
- l) Provide web/mobile users with absolute control over a digital identity with respect to accessing, sharing and purchasing news and information content, and other users.
- m) 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. Financial information and content access are protected by impenetrable security measures accompanied by extra strong encryption, thus protecting them from external disclosure as well as internal disclosure.

#### **10. Content support**

- a) 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. (Higher tiers of authentication might be added later and would involve collaborations within the health-care industry, banking industry and government, among others.
- b) Create a news social network that operates through news and information content web sites at all levels from local to international.
- c) Create a means to deliver contextually-relevant content recommendations to network members.
- d) Provide easy, low-cost, copyright-respecting access to “Deep Web” and other content stored behind pay, registration, membership and once-proprietary barriers.
- e) 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.
- f) Enable a system allowing site users to earn cash or rewards for engaging in a variety of potential interactions with commercial entities.
- g) 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.

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