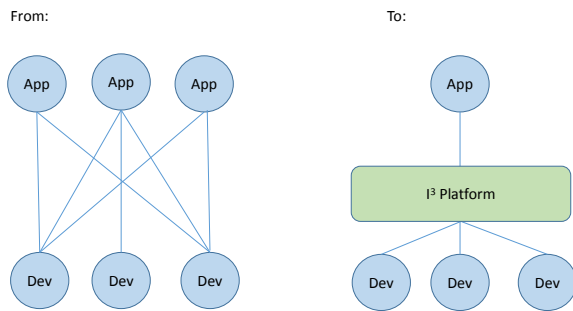




There are a numerous IOT forecasts from different prognosticators and while the numbers vary widely, everyone agrees that the market potential is enormous and it will globally change the way we live. There is, however, an unspoken fly in the ointment. IOT applications have no value until the devices they depend on are deployed in the network and the device-side owners have little incentive to aid these companies in disclosing their personal data. Until this chicken-and-egg problem is solved, IOT application developers will struggle break free and fulfill the promise that IOT represents.

A team of Viterbi and Marshall researchers have developed a concept that seeks to turn the IOT deployment paradigm on its head. The idea is based on the vision that properly motivated, individuals will contribute their IOT data to a managed IOT marketplace. USC's Intelligent IOT Integrator (I³) is a new class of IOT domain controller intended to provide such an environment. The marketplace makes the data available to the application community who compensates the users based on the value of the data.



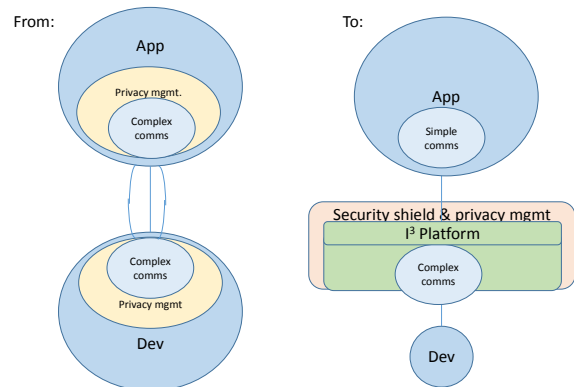
Under this vision:

- The IOT application community no longer has to worry about deployment of IOT devices but instead can make use of a large community of networked IOT devices on a pay-as-you-go basis.
- The IOT device community received an incentive to grant IOT application to the

data generated by IOT devices. Device owners will begin to compete among one another to increase the value of their data so as to attract more application users.

To create such a marketplace is complicated and faces many technical, research, and market issues. Success depends on the platform developing and maintaining a trusted position among its supported IOT device owners. This requires significant attention to privacy issues and requires operational plans are established to involve the user should a breach occur. IOT device owners will rightfully expect to control the data dissemination so their data sharing reflects their personal desires.

Security and economics are significant concern which must be addressed before large scale IOT networks can evolve. IOT devices have to minimize their cost if they are to achieve deployment on a large scale. The complicated and dynamic nature of a modern network precludes integration of complex functions in every IOT device and drive the need for an IOT domain controller as the means to reduce costs while increasing security.



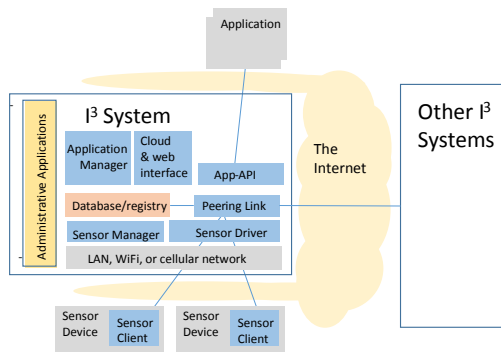
The system is designed to run lights-out (no manual intervention is required for normal operation). This allows operational costs to manageable while the system scales to support a larger number of IOT devices. The

marketplace concept incorporates the needed mechanisms needed to ensure sustainable operations.

Unlike many opensource projects where the opensource license focuses on software distribution, the I³ system license requires that operational entities meet defined operational requirements in an effort to ensure operational compatibility between different I³ operators.

Part of the I³ systems concept includes a data curation system. When new sensors or applications are detected, notice of their existence is sent to the registered user community. There is also browsable directory and a recommendation engine that further simplify the process of connecting IOT data sources to the applications that need their data.

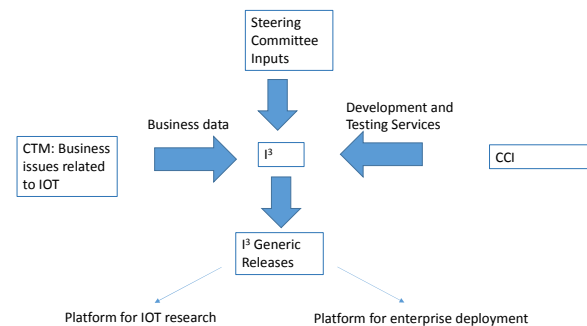
A persistent database has also been envisioned to allow continued application operations in the face of dynamic wireless access environment. This system serves to manage communications overhead so IOT devices are not overwhelmed with reparative requests for similar data.



A device agnostic approach to IOT devices allows the system to support a wide variety of device types and this in turn allows applications to consider many different kinds of data as these applications assist in automating our complicated lives. Devices can report structured or unstructured data, provide status or control features, and provide simple or complex system level coverage.

The design is modularly, scalable, and to support distributed environments allowing it to support university operations, a smart-city, or a group of factories spread over a large geographic area. A single system can provide coverage for a community, a non-profit, a business, government, or educational institution.

The I³ group is turning this vision into a reality. We have completed development of the initial requirements and have begun R1.0 software design efforts. We have also begun to seek corporate partners who understand the value of accelerating IOT market adoption and want to move the I³ concept into the opensource community. We are also in the process of seeking grants and other forms of support that will allow us to further accelerate our research efforts.



As development proceeds we know we will uncover technical challenges, support issues, and marketing hurdles which will need to be overcome. We are motivated by the knowledge that a democratized and fully realized IOT environment will create economic opportunity, improve our understanding of the world, and form the basis of the next industrial revolution.

We encourage all those interested in leading the IOT revolution, those who believe the future of IOT requires active participation, to join us by sending an email of inquiry to :

manager@i3-IOT.ORG