

# IATOPIA

A New Era of Mobile Phone Satellite Positioning and  
Guiding Application  
Using  
Reference Station Data and Agent-based Technology

Presented by  
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IATOPIA Agent-based Mobile Phone Satellite Positioning and Guiding Application

## IATOPIA Agent-based Mobile Phone Satellite Positioning and Guiding Application

- IATOPIA Corporate Overview
- IATOPIA Web 3.0 Technologies
- IATOPIA Agent-based SatRef System  
System Architecture
- IATOPIA iDGPS Mobile Solution  
IATOPIA BuBo FreeWalker
- IATOPIA Intelligent City Projects

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## Corporate Overview

- IATOPIA.com Ltd is a HK company founded in May 2006 by Dr. Lee, an inventor, scholar and system consultant with over 20 years of system consulting and R&D experiences in Web 3.0 intelligent agent technology, artificial intelligence, Internet and mobile technology and E-commerce.
- IATOPIA is both a technology company and service provider of Web 3.0 Internet solutions. Based on the state-of-art Web 3.0 intelligent Agent Technology (IAT), IATOPIA aims at the provision of a new generation of intelligent-based business solutions to meet for the ever-increasing needs and growth of business activities.



## Corporate Overview

- Core business of IATOPIA includes:
  - IATOPIA Web Channel Business
  - IATOPIA E-Publication and E-Archive Business
  - IATOPIA VCB2B.COM Business
  - IATOPIA Consultancy and Intelligent City Projects
- The primary mission of IATOPIA is to provide a new world of intelligent and knowledge-based systems to meet the corporate, the government and personal needs of:
  - Intelligent Business
  - Intelligent Life
  - Intelligent City



## IATOPIA Web 3.0 Core Technologies

1. **Web Channel Automation Technology**  
(IATOPIA DIY Web Channels)
2. **E-Publication and E-archive Technology**  
(IATOPIA iPublisher)
3. **Interactive and MM-based eReader and browser Technology**  
(IAToReader and BuBo Browser)
4. **Multi-party Video Conferencing Technology**  
(IATOPIA FaceTalk & CyberClass)
5. **Web 3.0 Ontology Technology (Semantic Web Technology)**  
(IATOPIA KnowledgeSeeker)
6. **High-precision Indoor WiFi Positioning and Servicing Technology**  
(IATOPIA Indoor FreeWalker)
7. **High-precision iDGPS Positioning and Servicing Technology**  
(IATOPIA BuBo FreeWalker)

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## Invention Patents\*

1. IATOPIA Intelligent Agent Technology and associated systems
2. IATOPIA Intelligent Outdoor Global Positioning and FreeWalker System
3. IATOPIA Intelligent Indoor Wireless Positioning and FreeWalker System
4. IATOPIA Intelligent Content Management System and KnowledgeSeeker Search Engine
5. IATOPIA Chaotic Encryption and Decryption Technology
6. IATOPIA Copyright Protection Technology (CPT) with the application of Content Management System (CMS) Platform.
7. IATOPIA Intelligent Property Management and Servicing System
8. IATOPIA Facecognizer - An Intelligent Face Detection and Authentication System

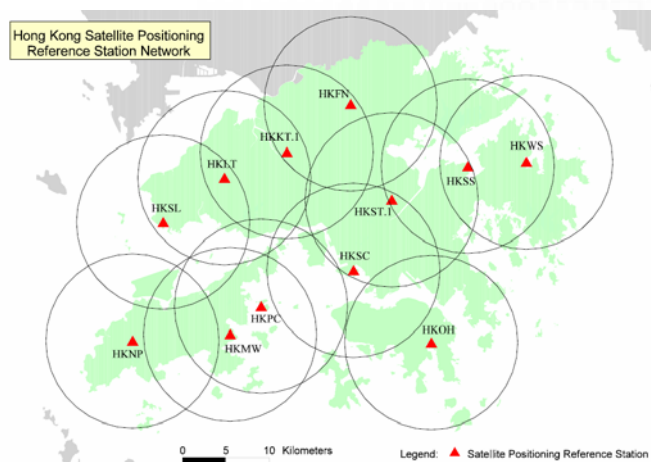
\* Remarks:- Region covers: HK, China, PCT over 138 countries  
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## IATOPIA Agent-based SatRef System System Overview

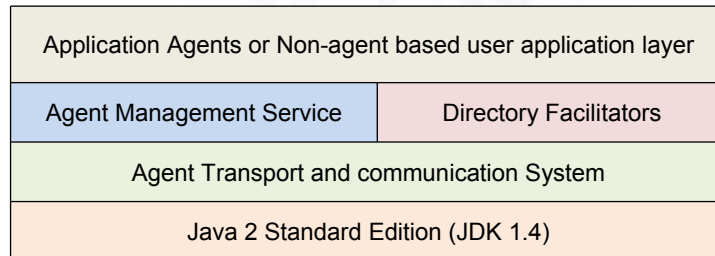
- Includes two major parts:
  - Hong Kong Satellite Positioning Reference Station Network (SatRef)
    - DGPS Positioning Technology
  - IATOPIA Runtime Environment (IAToRE)
    - IATOPIA BuBo Freewalker agent platform

## Hong Kong Satellite Positioning Reference Station Network (SatRef) Overview



## IATOPIA Agent-based SatRef System

### Basic building blocks of the platform



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## IATOPIA Runtime Environment (IAToRE)

### Overview

- A FIPA-compliant Agent Platform with Agent Management System, Directory Facilitators and Message Transporting System. All these components are automatically started with the agent platform.
- A registration manager to act as a directory facilitator to act as yellow page for registering or searching an agent inside the platform.
- Message transporting mechanism for agents to communicate with each other and dispatching agents.
- A lifecycle manager as an agent management system to control the agent's lifecycle within an agent platform.
- A graphical user interface for the users to manage

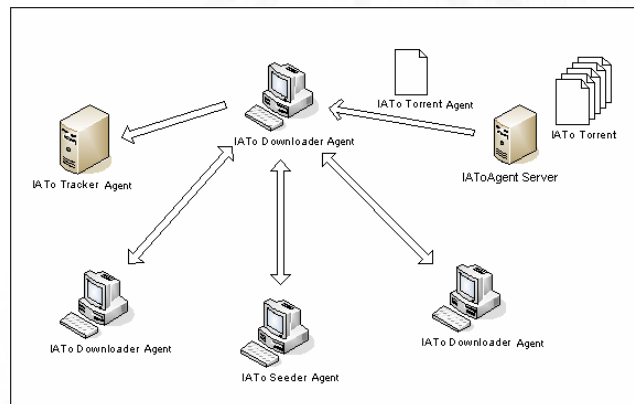
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## IATOPIA Runtime Environment (IAToRE) IAToRE Server GUI



## IATOPIA Agent Technology IATo Multi-agent Environment



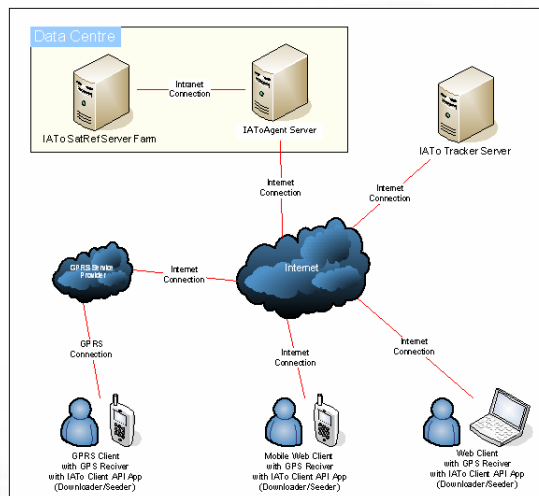
## IATOPIA Agent-based SatRef System Technical Infrastructure

The proposed system is integrated with FOUR of state-of-art technologies

- SatRef Technology
- IAToRE Technology
- Intelligent Agent Technology (IATo)
- Grid Computing technology

To implement the SatRef system in a distributed system with IAToRE and IATopia Agent technology.

## IATOPIA Agent-based SatRef System Technical Infrastructure

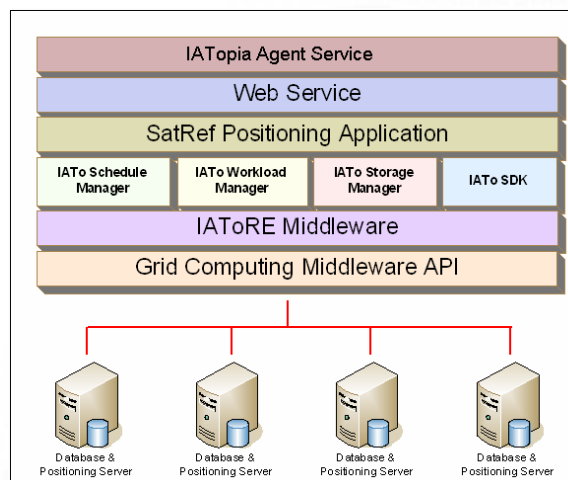


## IATOPIA Agent-based SatRef System System Architecture

IAToRE is adopted with IATo APIs and tools including the following items:

- IATo Software Development Kit (IATo SDK). It's a set of API for application development over the IATo Runtime.
- IATo Schedule Manager. It is for scheduling the job to be done on the system.
- IATo Workload Manager. It is for system load balancing.
- IATo Storage Manager. It is for managing the hard disk memory of the whole system.

## IATOPIA Agent-based SatRef System System Architecture

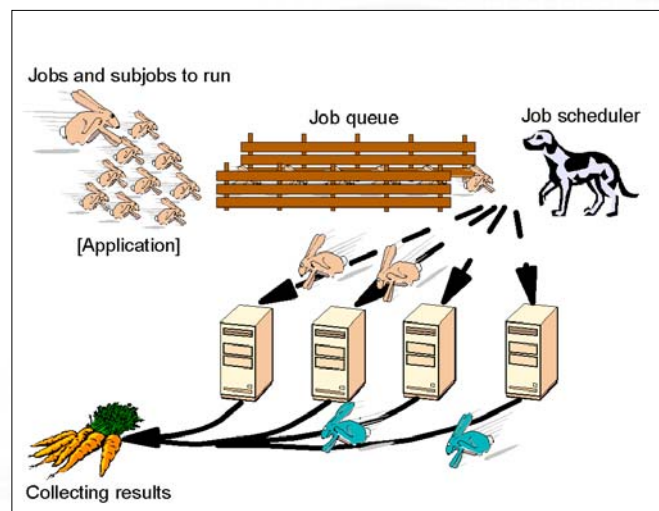




## IATOPIA Agent-based SatRef System Agent Components

- Downloader Agent
- Seeder Agent
- Torrent Agent
- Tracker Agent
- Grid Node Agent

## IATOPIA Agent-based SatRef System Grid Computing Technology



## IATOPIA Agent-based SatRef System Gridding in HK

- Quick Facts of Hong Kong Area Size:

Land Area: 1,105 km<sup>2</sup>  
 Water Area: 1,650 km<sup>2</sup>  
 Water Area Rate: 59.9%  
 Total Administer Area: 2,755 km<sup>2</sup>

Source: Wikipedia

- Assume there are one node for each crossing point on the grids, we'll have:  
 → 52,488 x 52,488 ≈ 2,755,000,000 virtual nodes

## IATOPIA Agent-based SatRef System IATOPIA BuBo FreeWalker

- The BuBo Freewalker agent is a global positioning system (GPS) agent run in IAToRE
- Freewalker agent adopts GPS technology for positioning in Hong Kong
- Freewalker agent receive SatRef data from Lands department
- Freewalker agent adjust the original GPS signal by the received SatRef data for DGPS calculation
- The DGPS produces more accurate result than the original GPS signals

# IATOPIA Agent-based SatRef System IATOPIA BuBo FreeWalker

iPhone BuBo Freewalker

Search

Restaurant Info

E-Coupon

E-Map

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## IATOPIA BuBo FreeWalker Project (Intelligent City I)

- IATOPIA BuBo FreeWalker is an innovative with the integration of IATOPIA patented agent-based outdoor positioning technology with Lands Department developed Satellite Referencing System (SatRef System).
- The main objective is the increase the resolution of current outdoor GPS-based resolution of around 10-20m to around 1-3m using IATOPIA Agent-based SatRef Technology (so-called AgDGPS).
- IATOPIA BuBo FreeWalker is a new age of HK guiding, travel and shopping mobile application with the partnership of One Media Group for all advertising, sales and marketing activities. BuBo FreeWalker will promote a new age of advertising so-called "LBS-eAds or iDGPS eAds" in which all the eAds will be pop-up according to the user's physical location.
- Users can also use BuBo FreeWalker to redeem e-coupon on spot, and/or locate and send messages to the BuBo FreeWalker partner(s) by using the partnering function.



## IATOPIA Space Museum FreeWalker Project (Intelligent City II)

- With the adoption of IATOPIA patented Indoor WiFi Positioning and Guiding Technology, IATOPIA Space Museum FreeWalker provides an intelligent visitor guiding and exhibit locating solution.
- Current project (Phase I) involves the implementation of a large-scale prototype of iPhone-based Museum FreeWalker system in HK Space Museum main exhibition hall for 10 selected exhibits (with 1 m resolution), related services include:-
  - iPhone-based Space museum automatic guiding system
  - Automatic multi-language multimedia (both video and audio) streaming of exhibit information when the visitor enters 1-m radius of selected exhibits
  - Partnering function for locating companion(s) within Space Museum



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