E-sat Platform
for Learning, Library and Public Health

Prepared for:
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Presented to:
Future University

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Preface

The **Future** is not some place we are going to but one we are creating. The paths are not to be found but made. And the activity of making them changes both the maker and the destination.

E-sat Platform for Learning, Library and Public Health is trendsetter not the trend follower, and we must not accept anything else.

Outline

➢ **E-sat Platform**

It is the tool for partnership with organizations worldwide promoting the collaboration and innovation to tackle critical problems, market development and resource management in a wide variety of subjects. This is the tool on HOW to learn rather than WHAT to learn that maintains the recipients knowledge up-to-date. **(slides 4-21)**

➢ **E-sat Learning and E-sat Library**

It is utilized to bring education, knowledge & library to help the recipients develop Knowledge Base Economy and to improve learning process in all levels and particularly keeping the work-force relevant & up-to-date. **(slides 22-38)**

➢ **E-sat Public Health**

It aims to harness advances in science and technology to deliver integrated public health solutions and save lives around the globe specially developing countries at anytime with high reliability and privacy. **(slides 39-47)**

➢ **Conclusion**

Presenting case studies, considerations, capabilities and vision of FrontierX Technology (FXT) in delivering the E-sat Platform with financial plan. **(slides 48-71)**

Visionary Leadership

- ➤ **Success factor is dependent to providing products and services in an up-dated technology.**
- ➤ **Services like learning and healthcare are continuous demands for high level of competence, dedication, inventiveness and fitness of the work force.**
- ➤ **The success is based on the ability of combining innovative solutions to solve the challenges or meet new markets.**
- ➤ **E-sat Platform will meet the goal of enterprises and communities to uphold the performance and to promote their products and services in line with the intended strategy and in accordance with their recognized potential.**

Meeting the Challenge

> FrontierX Technology (FXT) respectfully presents herewith E-sat Platform as a tool to meet the goals and the challenges set forth by enterprises for employees personal development potential.

> E-sat Platform provides the tool for market development in Learning, IT, Quality management and Productivity, Health care and Interdisciplinary R&D in variety of subject accessible to all locations World wide.

> The architecture of the E-sat Platform system is described in the following pages with proposed financials.

FXT's Solution

➢ **Interconnect and automate enterprises that will help the community as a whole,**

➢ **Provide a standard TV network for content delivery that will support employees, managers and customers,**

➢ **Provide up to date digital material accessible in all locations in a fast and reliable way for users,**

➢ **Provide a system to help developers with service delivery and impact monitoring in real time,**

➢ **Provide a tangible solution that justifies financing.**

Why FrontierX Technology's (FXT) E-sat Solution is different from standard SatCom platform

It is a Cloud Based Modular Virtualized solution that provides:

➢ **Efficient Resources Allocation**
  ➢ Conveniently access your resources without inefficiencies in storage space.

➢ **Centralized Management**
  ➢ Remote one stop shop for all tools

➢ **Uniform Distribution**
  ➢ Standard sharing among all users
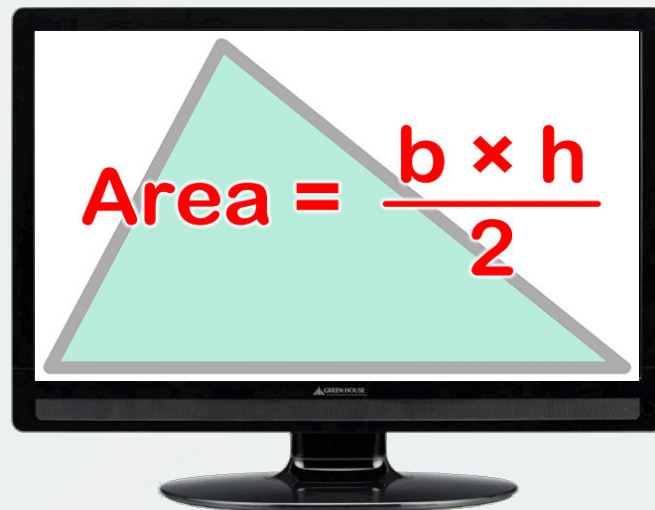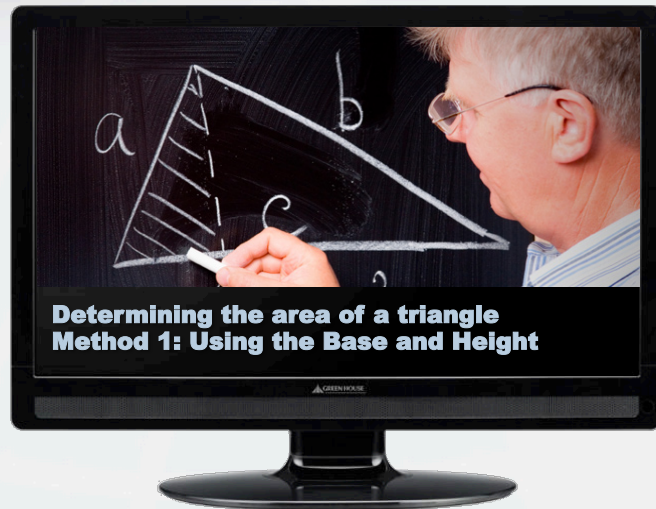
E-sat Platform Modules

FrontierX Technology's (FXT) platform is customized to specific objectives. Modules can work together or independently to create desired value. Specific objectives are achieved by utilizing the module Architecture of the standard platform.

* FXT-TV Live: Broadcasted
  Live TV channels
* FXT-CDN: Educational
  Content Delivery Network
* FXT-Library &
  Video On Demand Library

* SpeedNet Zero Latency
  Gateway
* Management
  System + Cloud
* Continuous Learning
  Evaluation System

FXT-TV Live and IPTV

- ➢ **What is FXT-TV?**

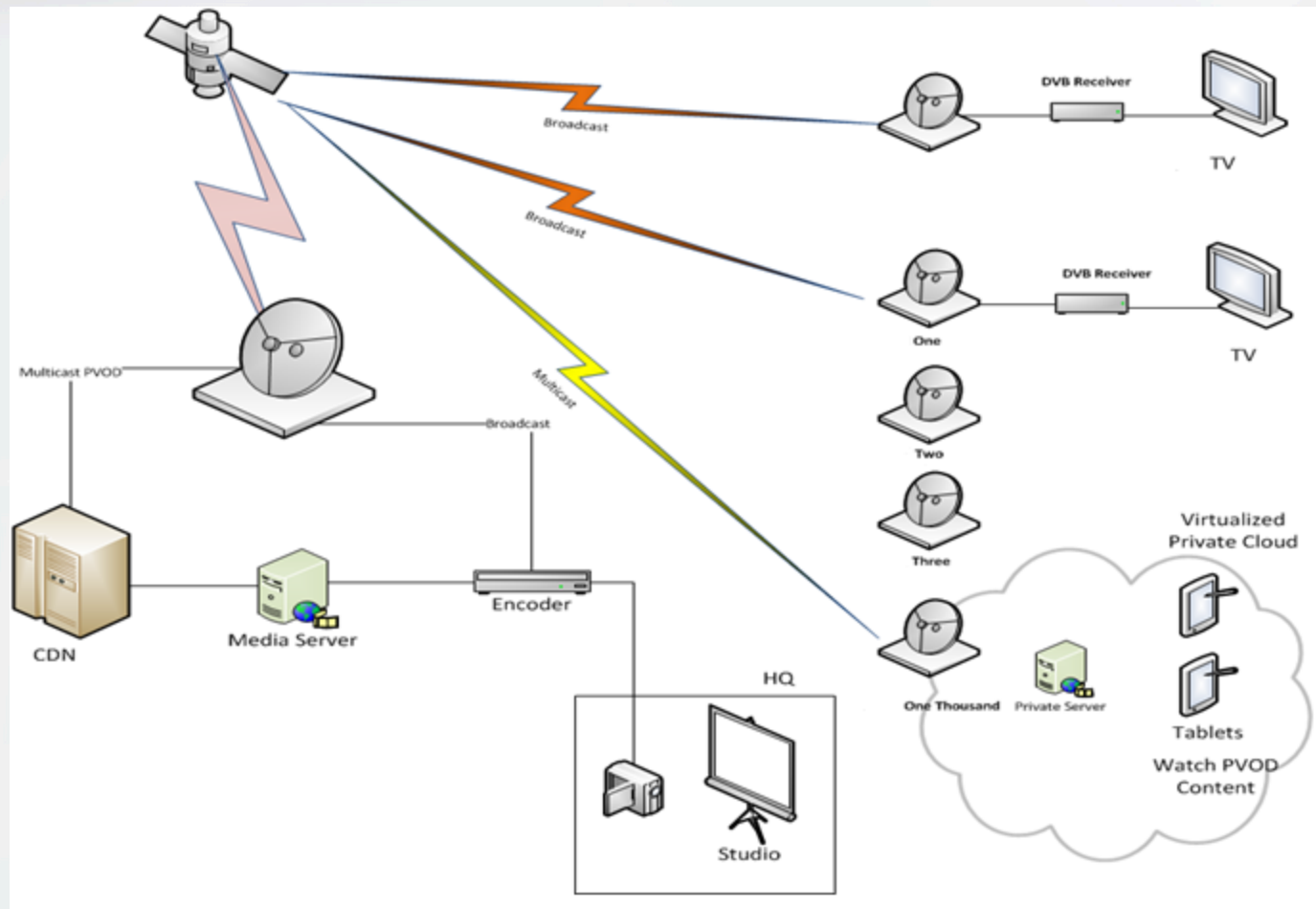- ➢ **FXT-TV is a Broadcast network for target Content**

- ➢ **FXT-TV can be setup as broadcast or streaming as IPTV.**

- ➢ **FXT provides the studio and facilities to prepare instructional broadcast of the content.**

- ➢ **FXT supplied equipment includes high quality devices for encoding videos and broadcasting signals.**

- ➢ **Capacity to have multiple TV channels.**

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FXT-TV Live Samples

Determining the area of a triangle
Method 1: Using the Base and Height

$$\text{Area} = \frac{b \times h}{2}$$

FXT-TV Architecture

FXT Content Delivery Network (FXT-CDN)

➤ **FXT-CDN streams memory-heavy content (videos and books) to 100 or 100,000 remote sites at the same time.**

➤ **FXT's unique protocol synchronizes all content from the Private Clouds efficiently and simultaneously.**

➤ **FXT-CDN is specially designed for institutions that need content replicated quickly and efficiently.**

➤ **Customization is easily configured and can be categorized based on any criteria educational level or age group.**

➤ **Constant monitoring of the network health of each site, finding errors and sending alerts in case of abnormal behavior.**

FXT-CDN Architecture

FXT-Library and Video on Demand (VOD)

- ➢ **What is FXT-Library?**
- ➢ **FXT-Library is a repository of Digital Documents and Multimedia that is managed from the Private Cloud.**
- ➢ **Content is available locally for all users so access is fast and reliable.**
- ➢ **The FXT-Library Private Cloud provides user interfaces for different portals or tablets.**
- ➢ **Organization is by Level and Subject to enable students to find exactly what they are looking for.**
- ➢ **FXT-Library supports any digital content provided by educational content providers viewed in a browser or on a PC (PDFs, Office Documents, Videos, Audio, Interactive Applications, etc.)**
- ➢ **What is Video On Demand?**

  Video On Demand (VOD) is a component of FXT-Library dedicated to playing recorded learning sessions, viewable anytime using FXT's DVB-S Receivers.

FXT-Library and VOD Architecture
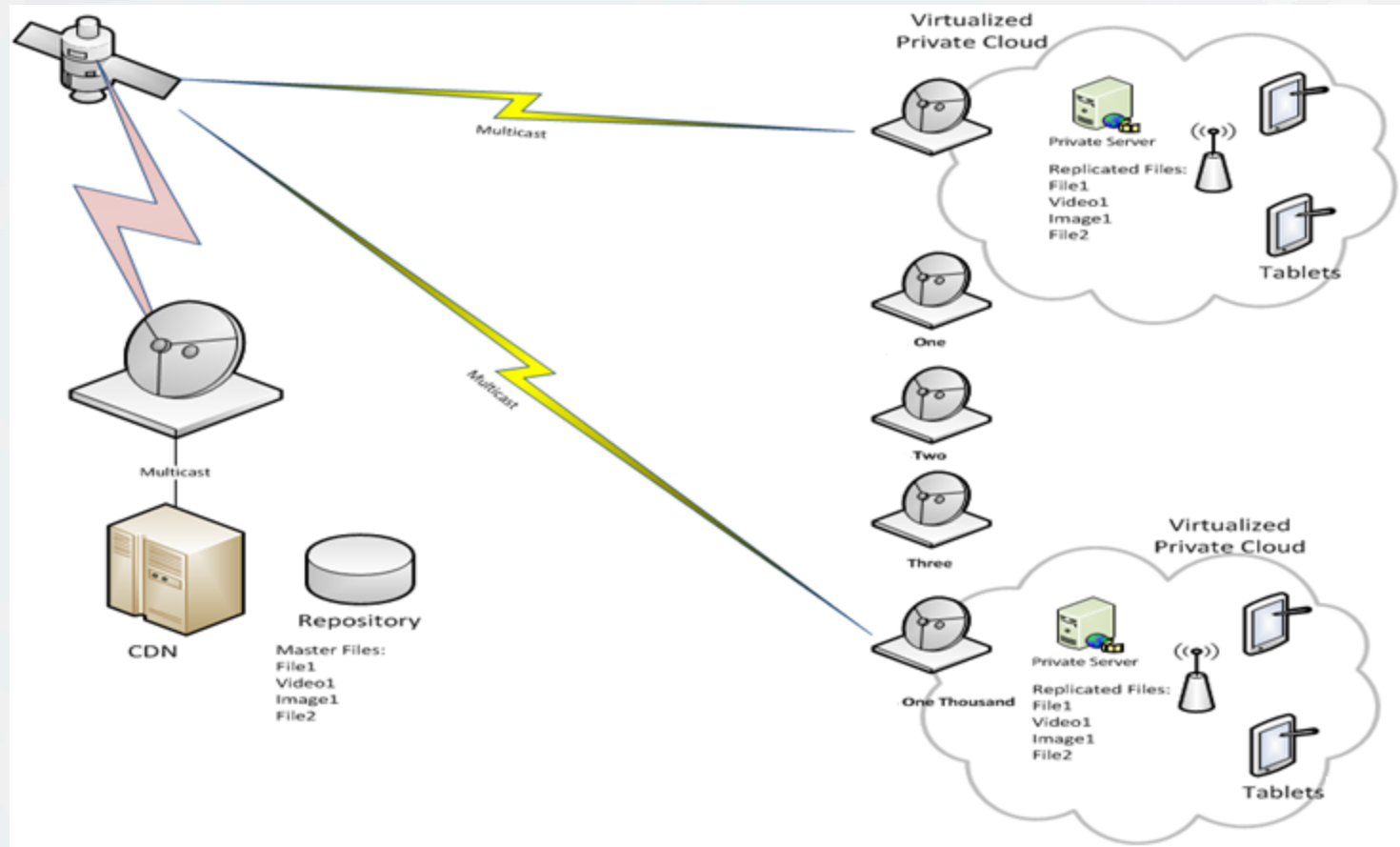
SpeedNet Zero Latency Public Cloud Network

Internet access accelerates and enhances the service effectiveness. FXT's goal is to bring the same opportunities globally despite remote locations which are impacted by high latency.

➤ **FXT's Zero Latency Public Cloud Network virtualizes the content of the most requested web sites and sends it to institutions in advance, allowing for speedier access to commonly used internet sites and the management system.**

➤ **Pre-requested content is available in the Private Cloud New Content is cached and made available after the first request.**

➤ **Content Filtering is also an added benefit where restrictions can be placed on unnecessary sites and advertising. Administrators are able to block any portion of the internet access as needed.**

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SpeedNet Architecture
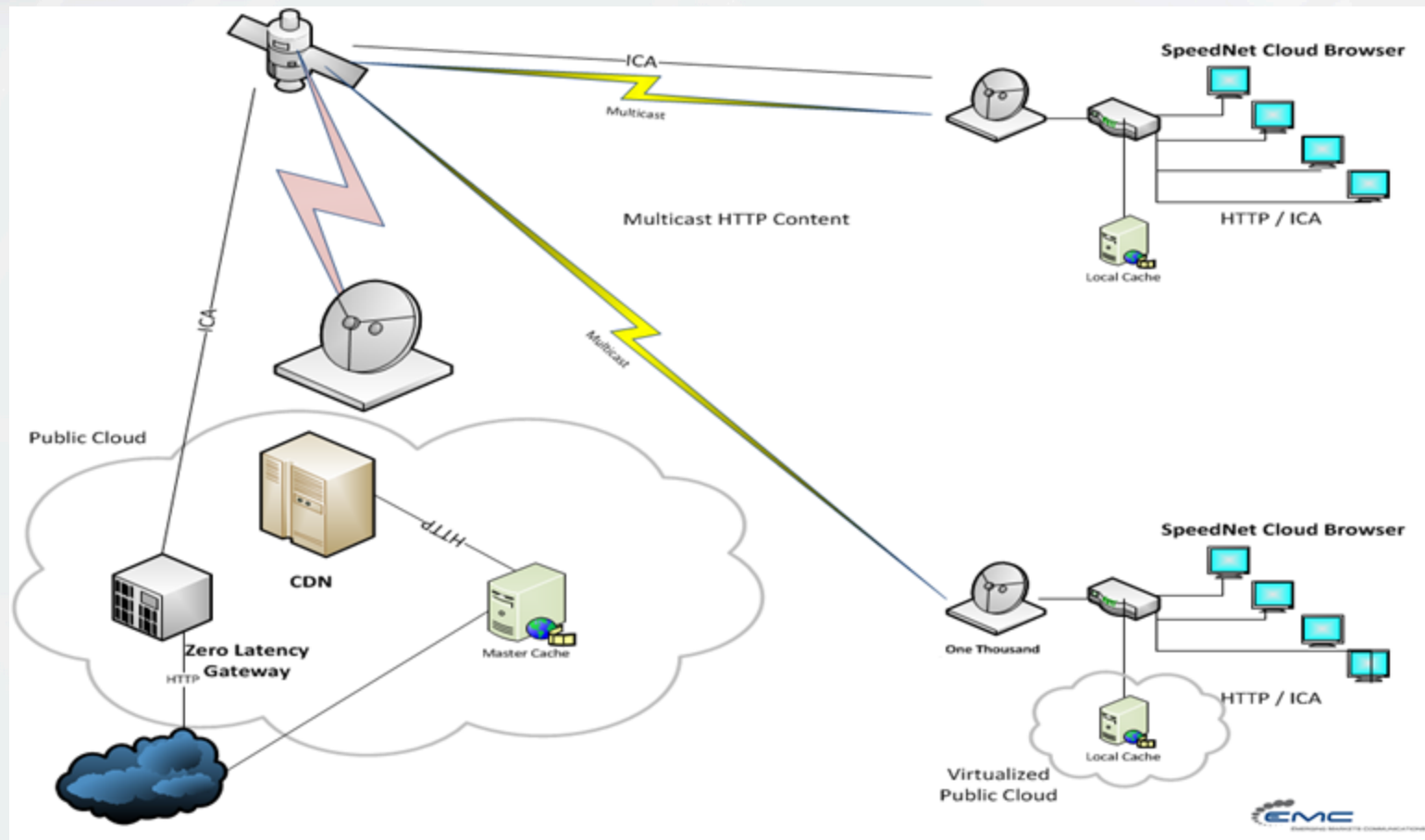
Continuous Evaluation System

System-User

➢ **Each user has a tablet with special interactive software that provides materials to help users employ the system based on their own need.**

➢ **Content-user take an evaluation that gives feedback about content. For instance, after viewing multimedia material, students take an quiz that gives instant corrections. Incorrect answers are presented again with supplemental information to help the student understand.**

➢ **The evaluation can take place in different level and time schedule.**

Content-provider

➢ **Providers have a tablet programmed to monitor System-users' evaluations and usage of content so that the provider can understand the learning process and improve the content and service impact.**

Reports

➢ **A report is provided to both the users and providers to identify problem areas.**

➢ **A report is also generated for the involved organization such as schools in learning services for quality improvements and recommendations.**
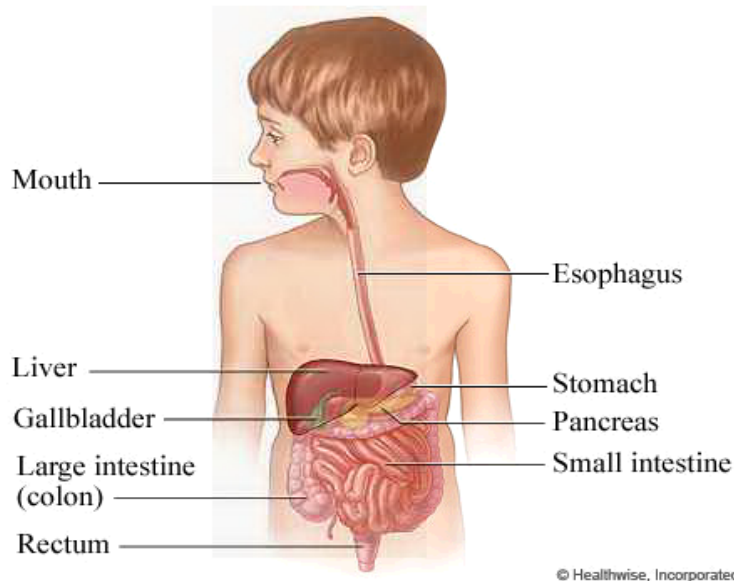
How the Continuous Learning Evaluation System Works

- ➢ **Qualified teachers are able to submit the learning material being delivered.**
- ➢ **Content is supervised and approved by a professional before inclusion in the curriculum.**
- ➢ **All support materials (videos, web pages, books, or interactive applications) are sent to the Private Cloud in each school.**
- ➢ **Teachers provide feedback to HQ before deploying to students.**
- ➢ **Teachers have flexibility to update daily teachings.**
- ➢ **Facilitates real time interaction between students and teachers.**
- ➢ **Students move forward when they answer 100% of the evaluation questions correctly.**
- ➢ **Reports assist teachers to review each student's performance, including how many times they had incorrect responses.**
- ➢ **The Educational Bureau receives an ongoing report to determine problematic subjects for students.**

E-sat content sample for learning

Child's Digestive System

Mouth —
Esophagus —
Liver —
Gallbladder —
Stomach —
Pancreas —
Large intestine (colon) —
Small intestine —
Rectum —

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The digestive system is responsible for breaking down food, absorbing nutrients from the food, and ridding the body of waste products from the food. The digestive system consists of the:

* Upper digestive tract, which includes the mouth, esophagus, and stomach.
* Lower digestive tract, which includes the small and large intestines.
* Liver, pancreas, and gallbladder.

QUIZ: Digestive System

Q.2 The digestive process starts in the:

- ○ A) Stomach
- ○ B) Esophagus
- ○ C) Mouth
- ○ D) Bathroom

Back   Continue

Feedback

No, Try Again

The Esophagus helps the food go to the Stomach after the mouth chews your food and breaks up big pieces into little pieces that are easier to digest and swallow. Also, your saliva is more than just water. It has special enzymes in it that start to break down starchy food (potatoes, bread) while you chew.

Complete Platform Architecture
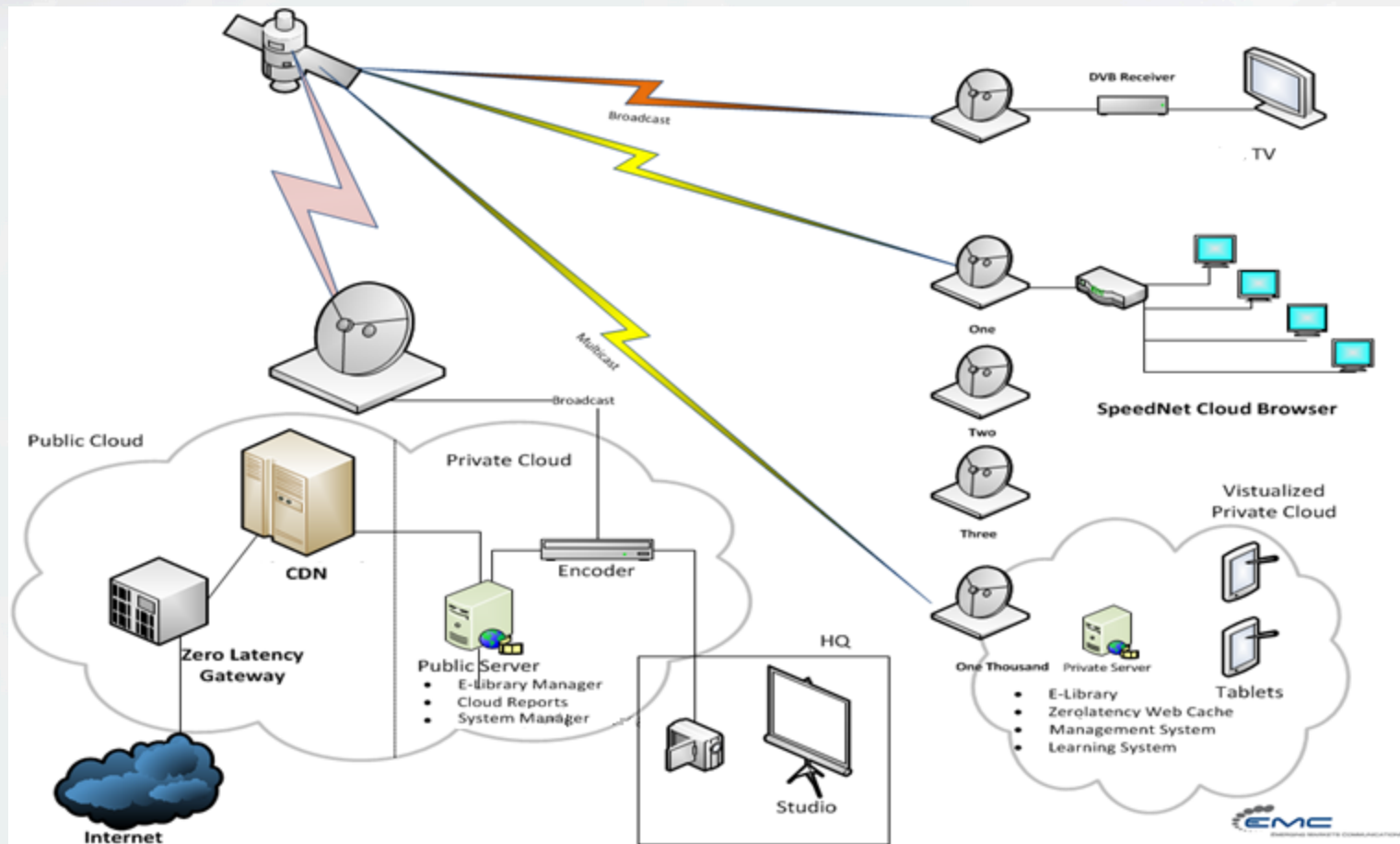
E-sat Learning

Making education (knowledge) available to everyone at affordable cost anywhere at anytime with improved outcome, high efficiency and increased satisfaction.

Motives

- ➤ **Good education has always been available at substantial cost to a few with substantial resources & funds.**

- ➤ **Education Technology is a very HOT subject. The investment in education has tripled within the past decade.**

- ➤ **The amount of knowledge available has grown beyond expectation.**

- ➤ **Keeping students interested and competent in absorbing the vast amount of knowledge available and comprehendible at affordable cost.**

- ➤ **Improving on <u>Learning Management System (LMS) and Knowledge Base Economy (KBE)</u> are just statements without the tool on how to accomplish the objectives. *We now offer the tool: E-sat Learning*.**

Problems

> ➢ **Lack of schooling infrastructure for a quality education to provide qualified work force, hence enterprises should compliment traditional education with mission specific education for work force,**

> ➢ **Lack of material to learn with sufficient textbook and reading materials,**

> ➢ **Existing material is outdated and unreliable to keep-up with the advancements,**

> ➢ **Shortage of teachers/instructors with academic qualifications,**

> ➢ **Mixing of genders and cultural issues.**

Offering

➢ **Complete standardization across schools,**

➢ **High quality material available for all students,**

➢ **Evaluation tools for students, teachers, and authorities,**

➢ **Feedback system for improvements and measuring success,**

➢ **Instructor training, student evaluations and curriculum planning,**

➢ **Overall improvement quality of teachers through continuous education**

E-sat Learning vs. E-Learning

Dedicated on-class training via satellite channel

- ➢ **Data**
- ➢ **Voice**
- ➢ **Video**

Adaptive off-class learning experience via satellite network

- ➢ **Multiple learning configuration**
- ➢ **Multi cultural teamwork experience**

Secure cost-effective learning in remote area

- ➢ **Access anywhere anytime**
- ➢ **Minimize on-site expert personnel in conflict zone**
- ➢ **Supporting area with no-fiber optic**
  - · **Africa, Amazon, West of China and central Asia**
  - · **On Sea**
  - · **On Air**
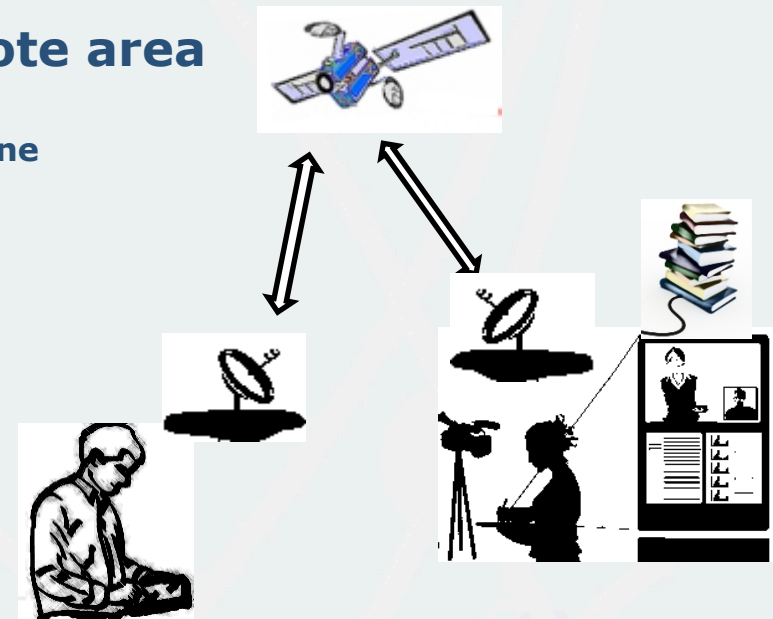
E-sat Learning Essence

Using well-proofed modules:
- HD-connect
- SpeedNet
- Global and Local servers

ConOps
- On-class phase (lecture)
- Off-class phase (pre- & post- lecture)

Well designed Human-machine interaction:
- i-Pad App as system-user software
- Samsung App as second generation

Green learning
- Paper-less
- No unnecessary transportation

PRE-LECTURE → LECTURE → POST-LECTURE

EMC ZERO LATENCY PLATFORM
The world fastest internet experience - Available WORLD WIDE
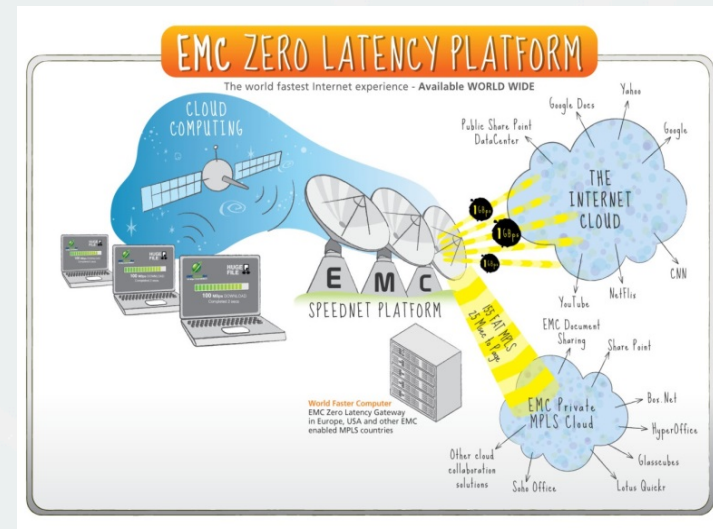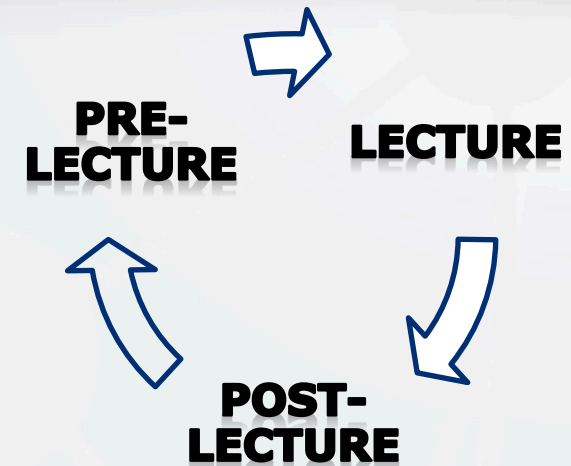
Core characteristics

Mass education+ personalized learning

Lectures ⟹ **Self-mastery** ⟹ **Interactive tutoring**

Skills for

- ➢ **Problem solving ability**
- ➢ **Creativity**
- ➢ **Cross-cultural teamwork**

Integrated tools

- ➢ **E-learning**
- ➢ **M-learning**
- ➢ **Cloud storage**
- ➢ **Cloud computing**

Content and material

- ➢ **Open-source**
- ➢ **Copyrighted**
- ➢ **Multilingual**
- ➢ **Text to Virtual reality**

Cloud Computing

Servers   Virtual Desktop   Software Platform   Applications   Storage / Data

OS   Apps

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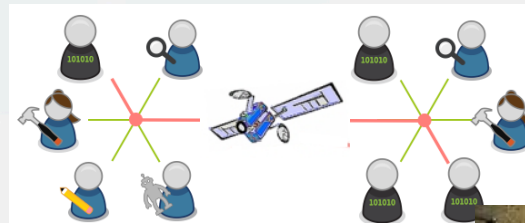
E-sat Learning Hardware Architecture
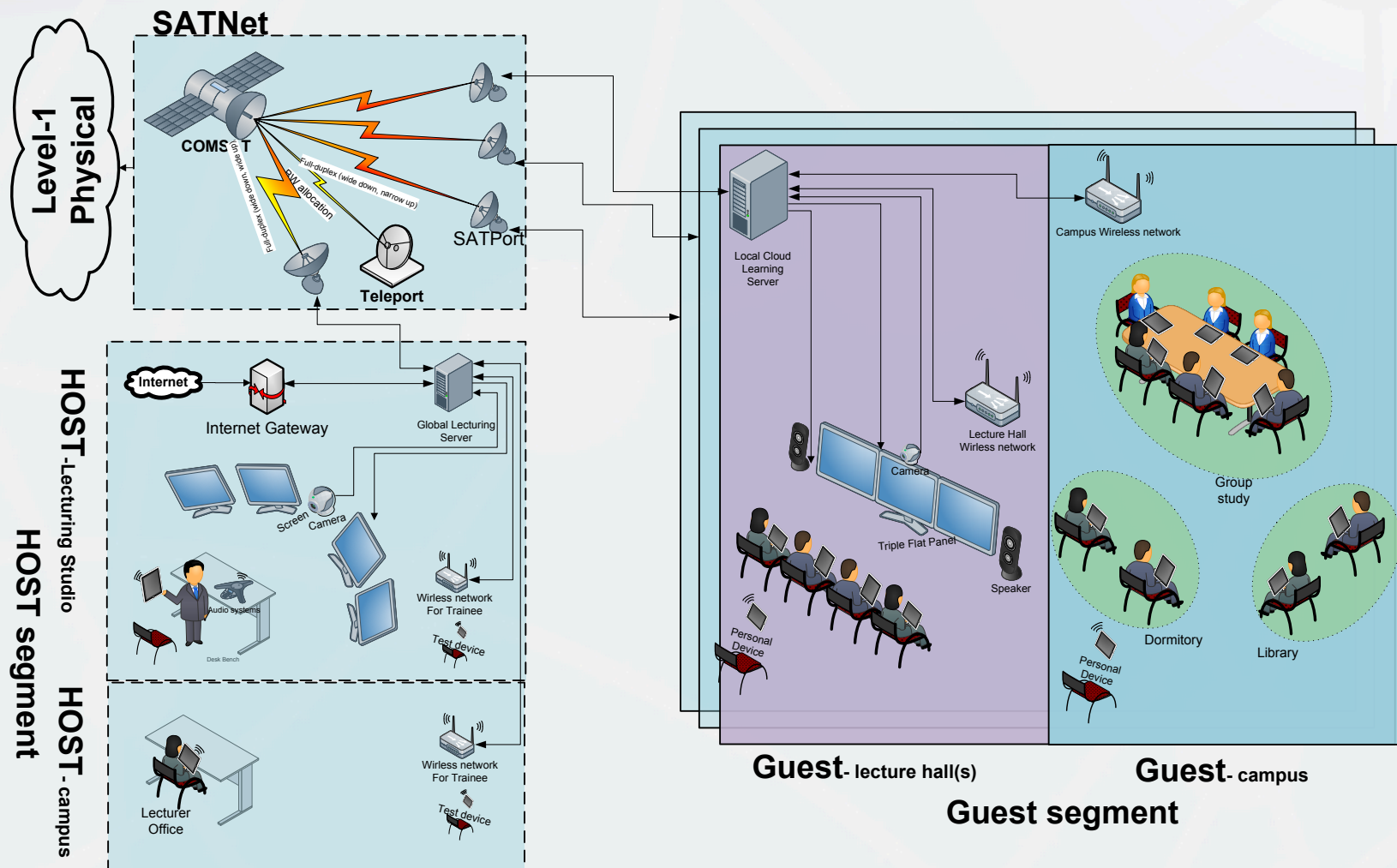
E-sat Learning Software Architecture

SAT-Backbone Software

Pre- & Post- Lecture Phase (Off-class)

Tailored EMC SpeedNet & Zero Latency Platform

Local cloud learning management (on server)

SAT I/F

Guest Encoder

Host decoder

Local Data Cloud

Wifi I/F

Wifi I/F

E- Reviewer

E-Slide viewer

E-Board viewer

E-Note

E-Data

E-train

E- Browser

E- Q&A

E-learn(on Trainee's device)

Guest- Learning Software

E-teach(on lecturer's device)

E- Reviewer

E-Slide editor

E-Evaluator

E-Data

E-Note

Wifi I/F

E- Q&A

E- Browser

Global cloud teaching management (on server)

Global Cloud Database

Guest decoder

Host Encoder

Wifi I/F

Internet I/F

SAT I/F

Internet

Test Unit Wifi I/F

E-learn software on device

HOST-Lecturing Software

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E-sat Learning Product Tree

E-SAT learning

Host

- Lecturer's P.Device
- Lecturer
- Test P. device
- Global Server
- Internet Gateway
- Campus network
- Lecturing studio

E-teach software

E-Browser	E-slide editor	E-data	E-reviewer
E-evaluate	E-board editor	E-Q&A	E-note

E-learn

See Trainee E-learn

Global cloud teaching

Host encoder	Cloud Database	Guest decoder
Studio I/F	Internet I/F	Wi-Fi I/F	SAT I/F

- Screens
- Camera
- Audio sys.
- Wi-Fi

SATNet

- SATPort(s)
- Teleport(s)
- Satellite(s)

Backbone software

- HD Connect
- SpeedNet

Guest(s)

- Trainees P.Device
- Trainees
- Local Server
- Campus network
- Lecture hall

E-teach software

E-reviewer	E-data	E-slide editor	E-Browser
E-note	E-Q&A	E-board editor	E-train

Local cloud learning

Host decoder	Cloud Database	Guest encoder
Wi-Fi I/F	SAT I/F	Lec. Hall I/F

- Wi-Fi
- Audio sys.
- Camera
- Screens

Lev0-segment | Lev1-physical element | Lev2-Physical element

Lev1-software module | Lev2-Software module

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E-sat Library

Bringing know-how to everyone at affordable cost anywhere at anytime with tools not only to enhance information gathering and comprehending but also to facilitate contents developing and sharing.
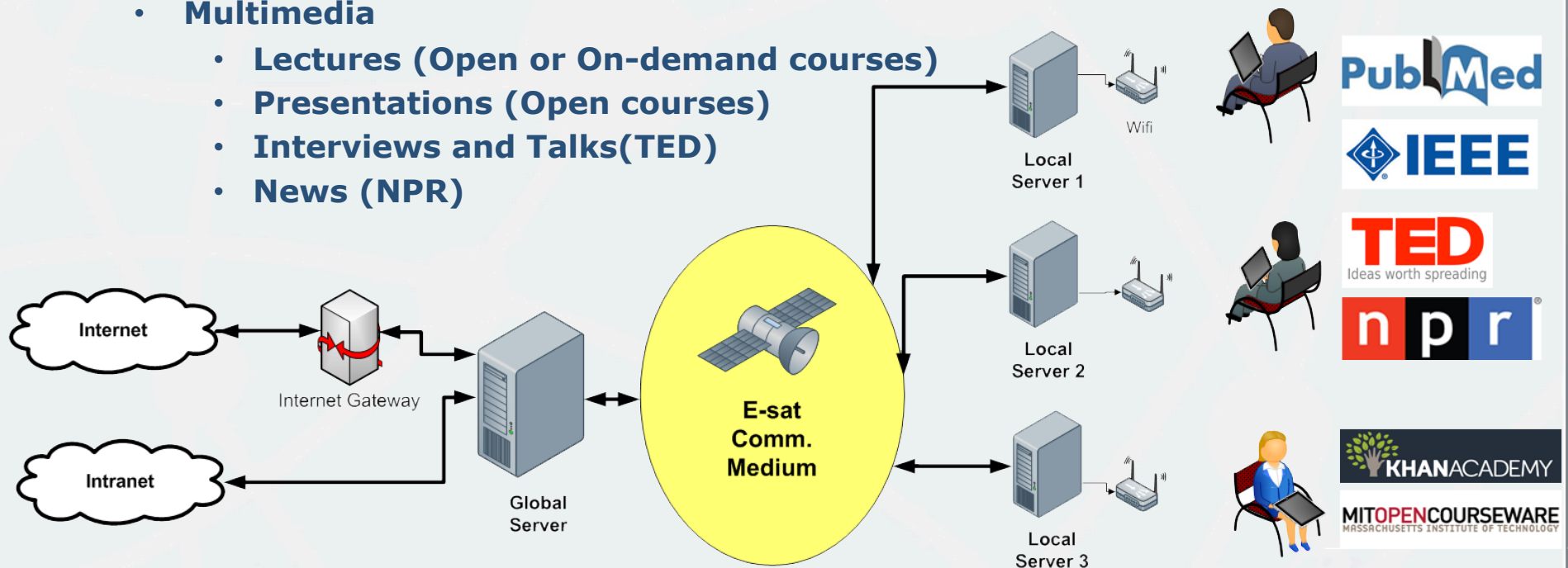
E-sat Library

- **Delivering data and tools to facilitate the information access among the E-sat users in all supporting areas**

- **Providing contents for growing economy upon increasing knowledge of the multi-cultural societies**

- **Categorizing the contents based on needs of users from principle to advance in all requested subjects**

- **Providing tools to enhance information gathering and to minimize research period**

- **Sharing contents and tools in local or global cloud with access management**

E-sat Library: Contents

- **The content can be tailored according to users to cover their subjects**
- **E-sat Library supports all digital material including:**
  - **Text**
    - **Professional digital sources (Science Direct and PubMed)**
    - **E-books**
    - **E-magazine**
  - **Multimedia**
    - **Lectures (Open or On-demand courses)**
    - **Presentations (Open courses)**
    - **Interviews and Talks(TED)**
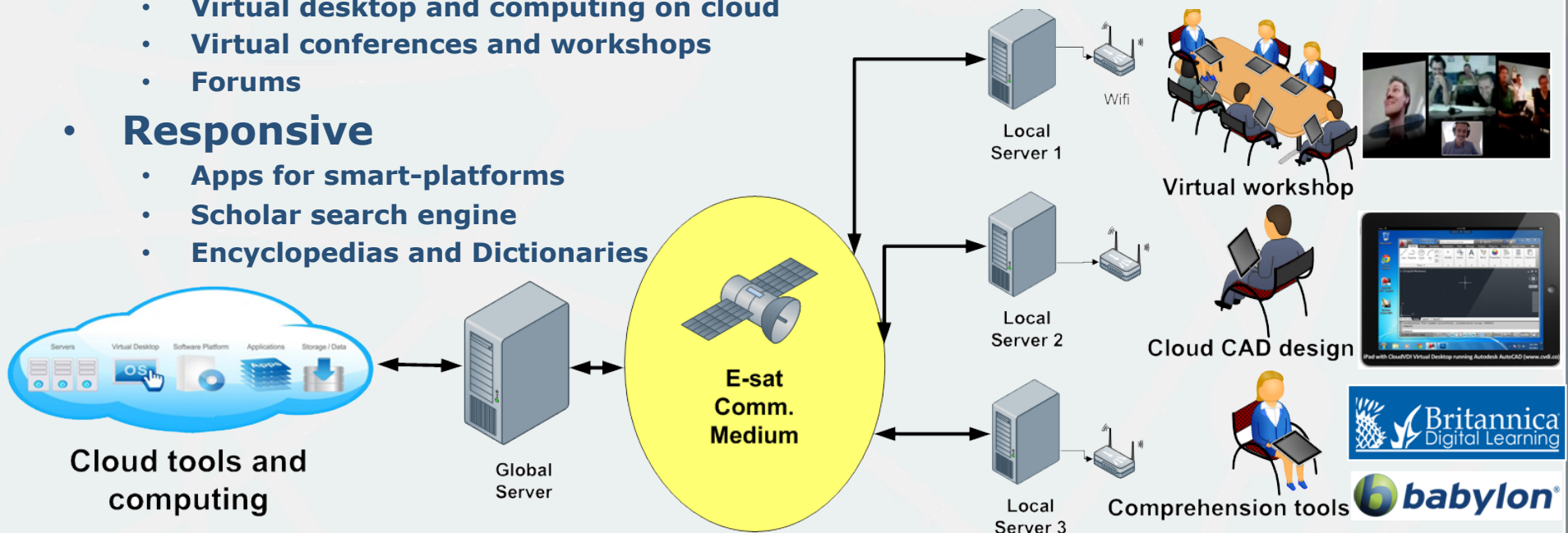   - **News (NPR)**

E-sat Library: tools

The E-sat Library provides tools to help client for

- **Accessing and comprehending new material in their area of interests**
- **Developing and sharing new contents**

The tools includes

- ### Interactive
  - **Consultancy and tutoring with well-known universities**
  - **Virtual desktop and computing on cloud**
  - **Virtual conferences and workshops**
  - **Forums**

- ### Responsive
  - **Apps for smart-platforms**
  - **Scholar search engine**
  - **Encyclopedias and Dictionaries**

Cloud tools and computing

Global Server

E-sat Comm. Medium

Local Server 1 — Wifi — Virtual workshop

Local Server 2 — Cloud CAD design

Local Server 3 — Comprehension tools — Britannica Digital Learning — babylon

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Delivering instruction, user manual and records

- **Delivery interactive information using hybrid satellite-terrestrial networks**
- **Supporting both text and multimedia instructions**
- **Providing information delivery and communication in multi-stakeholders system**
- **Customer defined search and show options**

E-sat Library for delivering instruction, Automation

- **Automated tracing of modifications of documents**
- **Pop-up alert for updated information**
- **Capability to generate a report from series of instructions and documents for a specific assigned task**

E-sat Library for delivering information, Accountability

- **Able to implement any organizational approval and traceability algorithm in platform's software**

- **Information delivery and updating based on accountability matrix and security measures**

- **Supporting information and communication in below flows:**
    - **Top-down**
    - **Bottom-up**
    - **Horizontal**

E-sat Public Health

Delivering public health services available to everyone at affordable cost anywhere at anytime with improved quality, high effectiveness, increased satisfaction and take control of personal health.

Motives

Telemedicine

- ➢ **Move bytes not people**
- ➢ **Transfer of medical data and, expertise**
- ➢ **Increase access to care**
- ➢ **Decrease healthcare delivery costs**
- ➢ **Support Telemedicine Instruments**
- ➢ **Adaptive to different end-user applications**
- ➢ **Enhance administrative matters**
- ➢ **Involve in the market with estimated value of $27.3 billion in 2016 (**$11.6 billion in 2011 **)**

UN Millennium Development Goals (MDGs)

- ➢ **Reduce child mortality**
- ➢ **Improve maternal health**
- ➢ **Combat HIV/AIDS, malaria and other diseases**

World Public Health NGOs

- ➢ **Affordable and reliable public health service in developing country**
- ➢ **How to deliver health intervention to those who need them most**
- ➢ **Integrated health solutions for family planning, and maternal and child health**
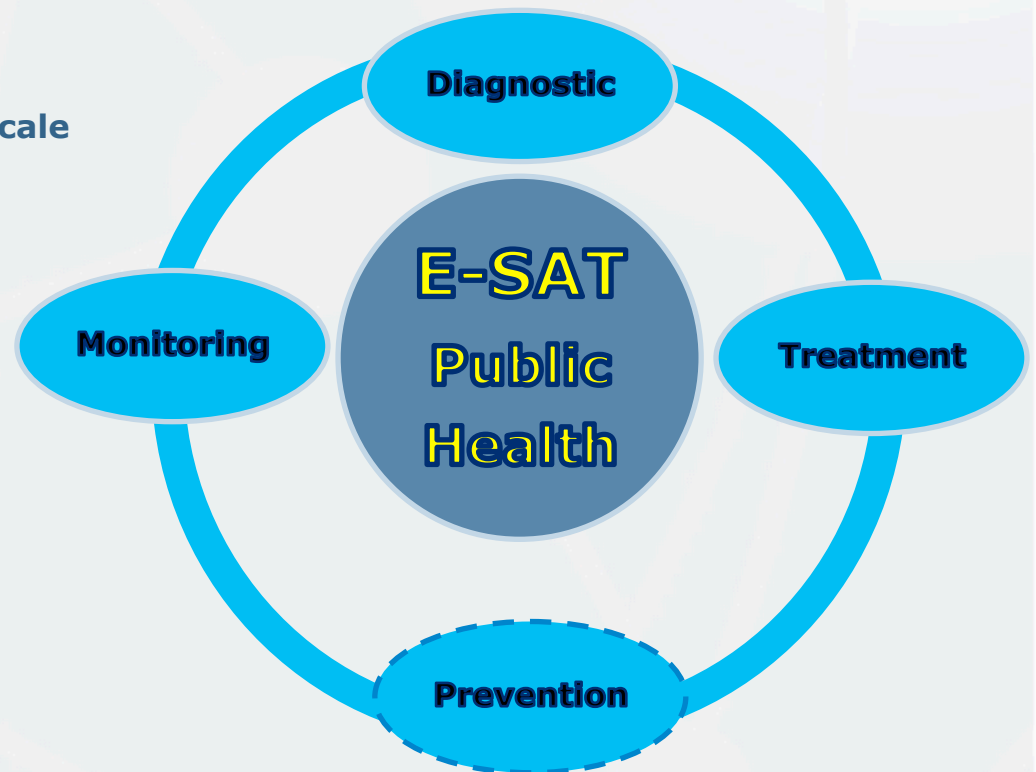
Potential impact in Public

Monitoring

- ➢ **Electronic health records**
- ➢ **Remote patient monitoring**
- ➢ **Chronic disease management**
- ➢ **Epidemic and Pandemic in global scale**

Diagnostic

- ➢ **Point of care**
- ➢ **Public Health education**
- ➢ **Clinical decision support**
- ➢ **Data management**

Treatment

- ➢ **Medicine Prescription**
- ➢ **Recovery monitoring**
- ➢ **Personalized medicine**

E-SAT Public Health Vs. e-Health

Cost-effective on-demand solution
  - ➢ **Bandwidth**
  - ➢ **Cloud computing**
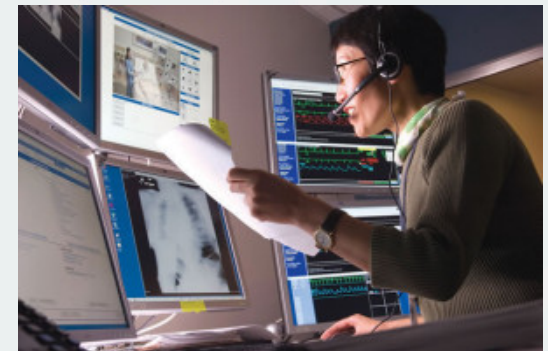 - ➢ **Insurance company involvement**

Location and time independent
  - ➢ **Always consultant in day zone**
  - ➢ **Medical licensure zones**

Flexible operation
  - ➢ **Real-time**
  - ➢ **Just-in-time**
  - ➢ **Store and Forward**
  - ➢ **Concurrent individual and population health support**

Security
  - ➢ **Secure servers**
  - ➢ **Private communication channels**

Location characteristics:

The E-SAT solution will be considered in locations with following attributes:

- ➢ **Distance location**
- ➢ **High concentration of patients**
- ➢ **Few in medical personnel**
- ➢ **Tense and continuous health condition monitoring**
- ➢ **Long-term large-scale health data management**

Location examples:

- ➢ **Remote areas**
- ➢ **Disaster relief areas**
- ➢ **Refugee camps**
- ➢ **Nursing Homes**
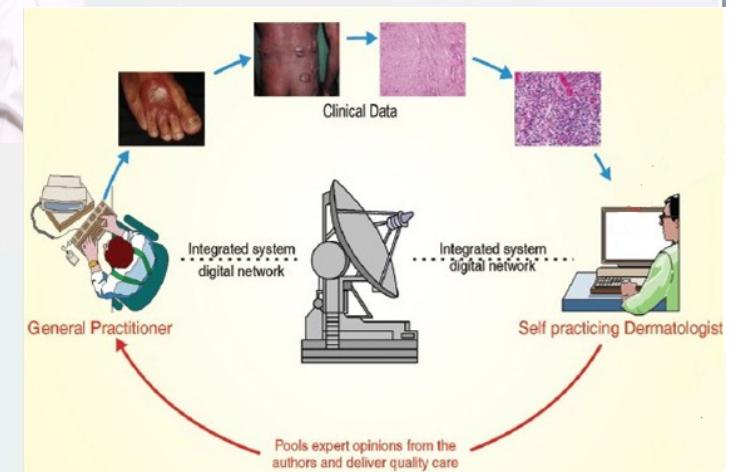- ➢ **Family doctors**
- ➢ **Future space explorations**

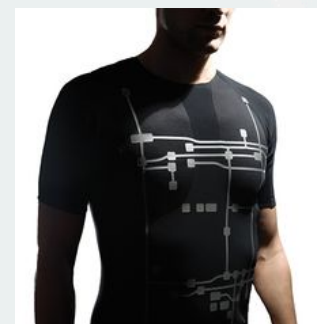# Medical Specialty and devices can be enable:

Specialties

- ➢ Radiology
- ➢ Pathology
- ➢ Dermatology
- ➢ Psychiatry
- ➢ Ophthalmology
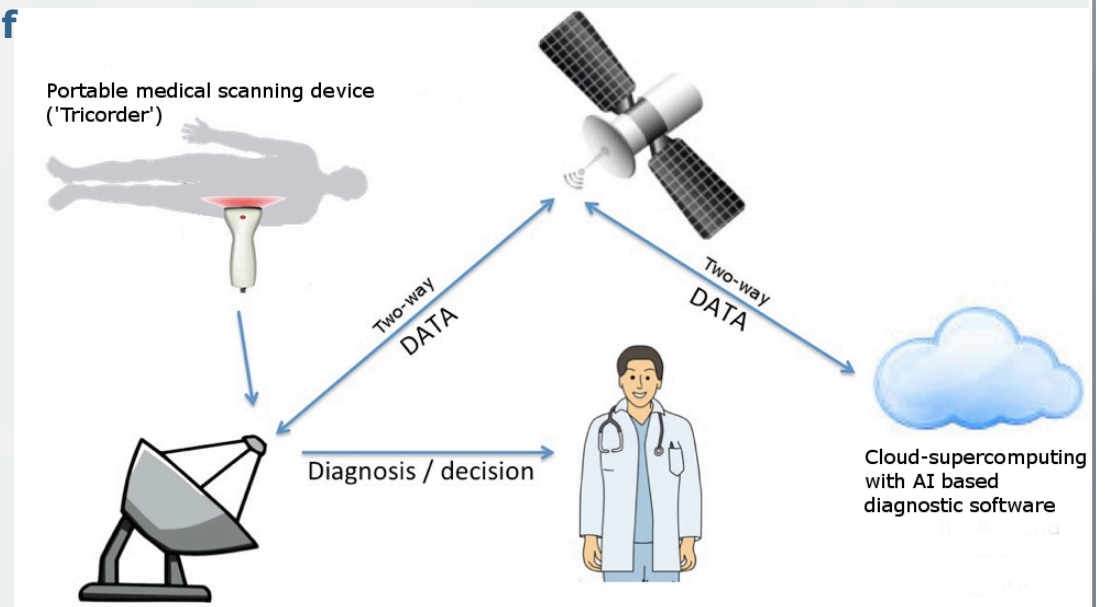- ➢ Neurology- Stroke Medicine
- ➢ Genomic

Self-scanning and treatment devices

- ➢ Wearable physiologic
- ➢ Wireless implantable (Insulin pump)
- ➢ Ultrasound
- ➢ Glucometer and blood analyzer
- ➢ Hemodialysis device
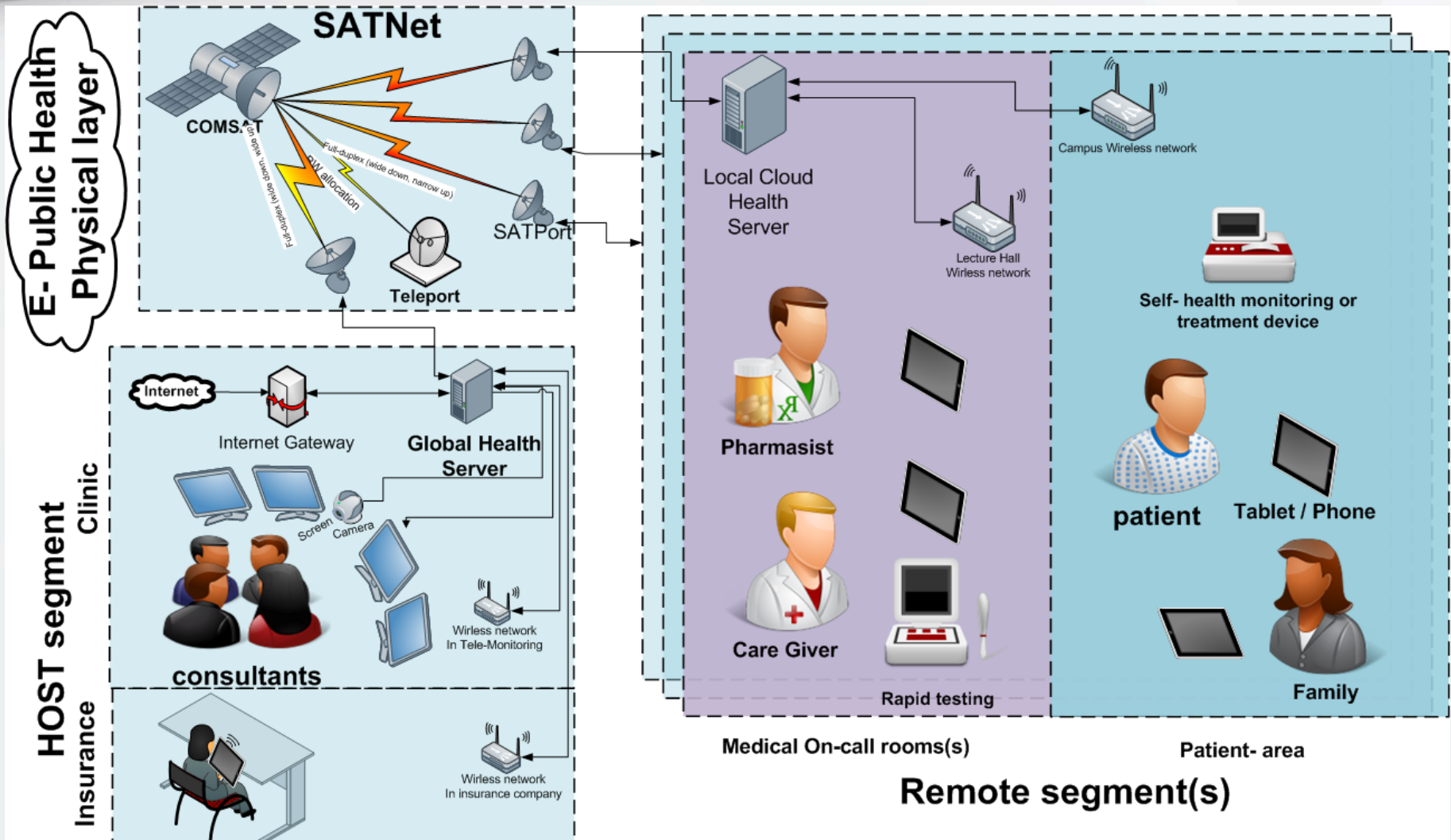- ➢ Mobility devices (walker, cane, wheelchair)

E-sat as initiation for Space4Health*

➢ **Transferring data**
  - **From: medical self-scanning devices**
  - **To: cloud storage and processing units**
➢ **For health monitoring and diseases detection**
➢ **Transfer diagnostics, guidelines and prescriptions**
  - **From: Medical host unit**
  - **To: patients or relevant physicians**
➢ **Particularly in disaster relief**

Portable medical scanning device ('Tricorder')

Two-way DATA

Two-way DATA

Diagnosis / decision

Cloud-supercomputing with AI based diagnostic software

* Courtesy from ISU SSP14 "Space4Health" team project (28 experts)

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Point of Care Remote Monitoring

Point of Care Remote Monitoring- cont.

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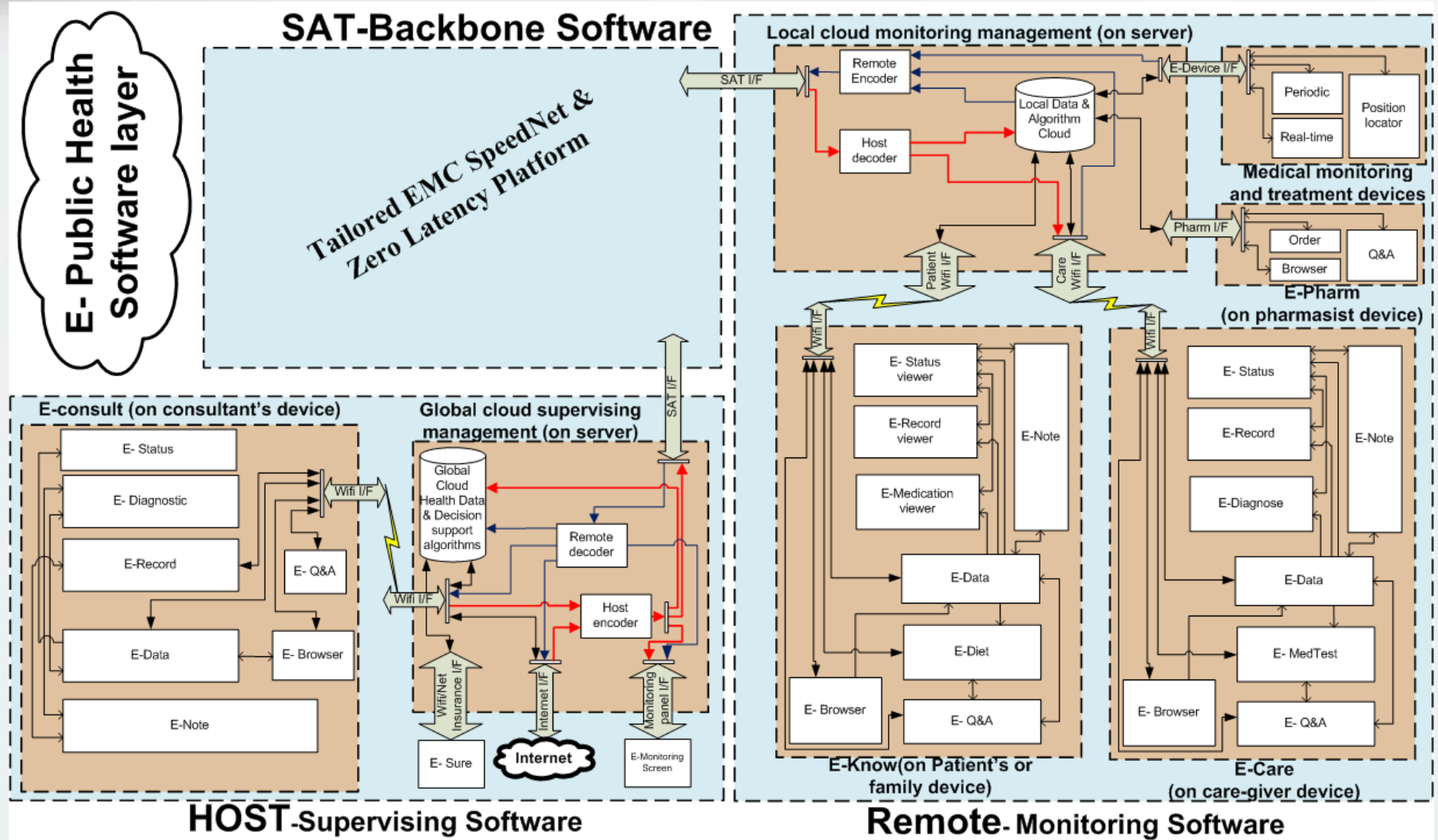
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Conclusion

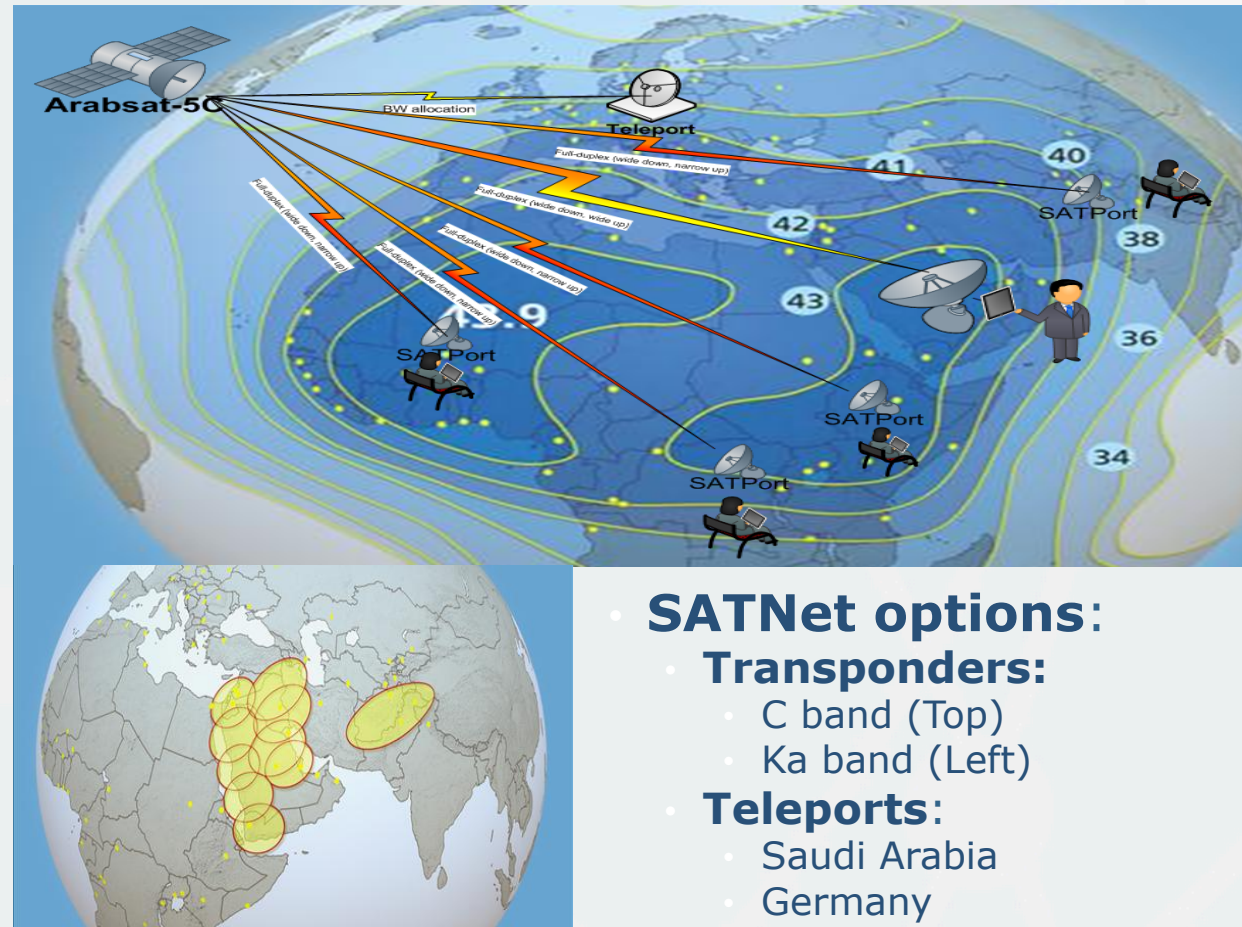FrontierX Technology LLC X

E-sat Case-Study

SATNet:
- Arabsat-5C
- EMC facilities

Host in:
- Saudi Arabia
- Europe

Guest in:
- Saudi Arabia
- Afghanistan
- Africa
- Middle East

SATNet options:
- **Transponders:**
  - C band (Top)
  - Ka band (Left)
- **Teleports:**
  - Saudi Arabia
  - Germany

Other applications of E-Sat

News and Entertainment Enterprise

- ➢ **News feed**
- ➢ **HD and 3-D Group Cinema**
- ➢ **K-TV (karaoke)**
- ➢ **Interactive games and movies**

Multi national corporation:

- ➢ **Cross nation R&D tools**
- ➢ **Knowledge managements**
- ➢ **On-job /on-site training**
- ➢ **Extension to video conferencing**

Thoughts Before Presenting the Conclusion

Pop-up cities are laboratories of innovations for the development of perfect cities in Future Living, such as;

➤ **South Korea: Songdo City, $35 billion pre-planned smart city with innovation in trash handling, security system and energy efficiency.**

➤ **Abu Dhabi: Masdar City, $19 billion oasis with sustainable energy system, transportation pod to replace cars and recycling 80% of its water.**

➤ **Japan: Fujisawa City, $590 million town with motion sensors for smart street lights, invisible security system and sustainable solar energy homes capable of staying off the grid for 3 days.**

Many of these pop-up cities are funded by governments, but increasingly they are supported by venture capital: Songdo City by the NY base world's largest real estate firm Gale, and Panasonic funded Fujisawa City.

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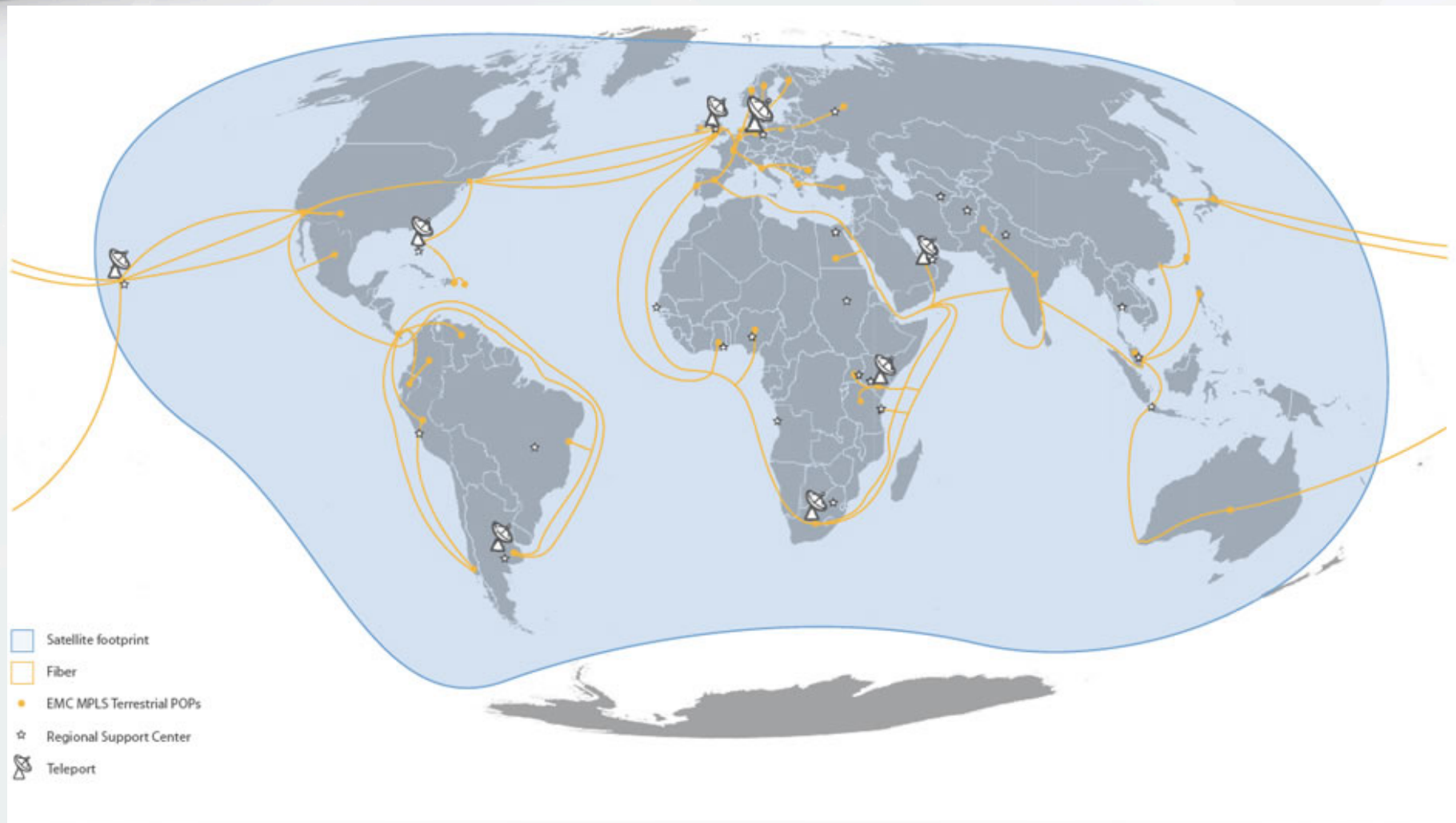
Thoughts Before Presenting the Conclusion – cont.

The current major cities do not go anywhere, they continuously improve through innovative projects, such as;

➢ Boston: Benchie, solar powered bench for charges & internet connection.

➢ San Diego: Desalination plant producing 50 million gallons of fresh water per day, turning 2 gallon of sea water to 1 gallon of fresh water with the salt discharged back into the ocean.

➢ Los Angles: Project Planter, digital license reader on every police car.

➢ Philadelphia: Big Belly, solar powered trash compactor that operates the entire year on the energy that trash truck uses per one mile with 4 times a week pick-up instead of 17 times per week

➢ Seattle: Bullitt Building, net zero energy & water use building.

Future cities, and innovation in current cities shows us how to live better.

E-sat Learning surpasses all innovations by showing us how to learn better in the complex environment of future, with opportunity accessible to everyone, in Conclusion & Vision presented in following slides.

FXT in cooperation with EMC coverage that spans to 196 countries

Satellite footprint
Fiber
EMC MPLS Terrestrial POPs
Regional Support Center
Teleport

FrontierX Technology LLC

Conclusion

E-sat Platform is:

- ➢ **Solution to <u>Knowledge Base Economy</u> and the engine of growth,**
- ➢ **Platform to educate <u>Knowledge Base Economy</u> work force,**
- ➢ **Infrastructure for sustainable, flexible and efficient access to resources anywhere at anytime for <u>Knowledge Base Economy</u>.**
- ➢ **Value added solution to current issues on education, health and E-Government by;**
  - ➢ **Providing uniform system solution to all citizens with diversity,**
  - ➢ **Managing infrastructure effectively with leading edge technology centralized for an efficient resource allocation.**

TOMORROW IS TODAY

Vision

E-sat will provide reliable state of the art services to improve quality of life in remote areas.

E-sat Platform currently being evaluated in <u>Mexico, Ethiopia and Nigeria</u> for deployment and commissioning for operation that will use the existing infrastructure such as; space segment allocation, proven infrastructure and user-friendly interfaces.

TOMORROW IS TODAY

E- sat University

The future of academic institution offering variety of disciplines with one million plus enrolment worldwide. With offerings of WHAT to learn and HOW to learn.

- **Instruction by leading scientists and experts,**
- **Reachable to remote areas with diversity to overcome physical, cultural and gender dilemma.**

E-sat University

Goals:

- One million student enrolment from around the globe,
- Working with leading engineering & business universities, such as; Stanford, Carnegie Mellon, Chicago & London School of Economics,
- Choice of the degree from any of the universities with designated core courses & over-lapping courses,
- Interactive with engaging learning environment

Note: One million student enrolment may (?) sound unreasonable or not achievable. As was building a tower half a mile tall just a fantasy. Kingdom Tower an engineering marvel with following particulars had ground breaking;

3,280 ft. (1,000 meter) tall	80,000 tons of steel
5.7 million sq. ft.	20 tons of carbon fiber steel robe
30 ft./sec elevator speed	terrace at 157th floor
$1.2 billion cost	

- ➢ **Few hundreds will ever see or experience the above engineering marvel.**
- ➢ **Millions will experience the benefits of E-sat Learning at fraction of cost.**

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E-sat Platform Financial

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Profit and Loss Analysis

General	Total Number of Schools		10,000
	Term of contract months		60
	Cost per scholl per month	$	500

Taqina	Revenue per month	$	5,000,000
	Initial Investment	$	30,000,000
	Total revenue	$	235,350,000
	Operational Profit	$	112,004,400
	Total Profit	$	82,004,400

EMC	Reponsibility	
	BW	
	Operation	
	Field support	
	Misc and spares	
	Tech support	
	Hub Baseband	
	Remote install	

Monthly to EMC	$	2,055,760.00
One time	$	30,000,000
Total to EMC	$	153,345,600.00

Taqina revenue
$235,350,000

Operations Profit
$112,000,000

EMC cost
$153,000,000
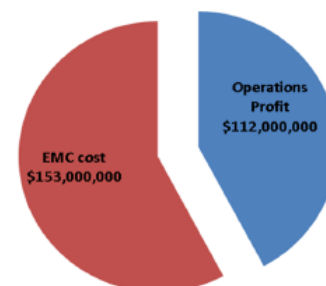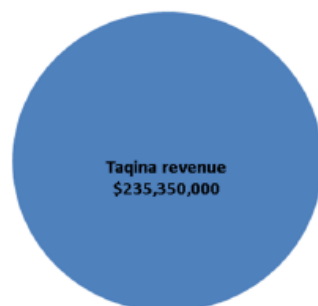
Five Year Revenue Analysis

	Year 1 Month 1	Year 1 Month 2	Year 1 Month 3	Year 1 Month 4	Year 1 Month 5	Year 1 Month 6	Year 1 Month 7	Year 1 Month 8	Year 1 Month 9	Year 1 Month 10	Year 1 Month 11	Year 1 Month 12
Number of install	0	50	100	350	500	500	500	500	500	500	500	500
Total remotes in operation	0	50	150	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500
One time charge												
Revenue from remote	$ -	$ -	$ 25,000	$ 75,000	$ 250,000	$ 500,000	$ 750,000	$ 1,000,000	$ 1,250,000	$ 1,500,000	$ 1,750,000	$ 2,000,000
Total revenue		$ -	$ 25,000	$ 75,000	$ 250,000	$ 500,000	$ 750,000	$ 1,000,000	$ 1,250,000	$ 1,500,000	$ 1,750,000	$ 2,000,000
One time charge	$ 30,000,000											
Total to EMC	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760

	Year 2 Month 1	Year 2 Month 2	Year 2 Month 3	Year 2 Month 4	Year 2 Month 5	Year 2 Month 6	Year 2 Month 7	Year 2 Month 8	Year 2 Month 9	Year 2 Month 10	Year 2 Month 11	Year 2 Month 12
Number of install	500	500	500	500	500	500	500	500	500	500	0	0
Total remotes in operation	5,000	5,500	6,000	6,500	7,000	7,500	8,000	8,500	9,000	9,500	10,000	10,000
One time charge												
revenue from remote	$ 2,500,000	$ 2,750,000	$ 3,000,000	$ 3,250,000	$ 3,500,000	$ 3,750,000	$ 4,000,000	$ 4,250,000	$ 4,500,000	$ 4,750,000	$ 5,000,000	$ 5,000,000
total revenue	$ 2,500,000	$ 2,750,000	$ 3,000,000	$ 3,250,000	$ 3,500,000	$ 3,750,000	$ 4,000,000	$ 4,250,000	$ 4,500,000	$ 4,750,000	$ 5,000,000	$ 5,000,000
Total to EMC	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760

	Year 3 Month 1	Year 3 Month 2	Year 3 Month 3	Year 3 Month 4	Year 3 Month 5	Year 3 Month 6	Year 3 Month 7	Year 3 Month 8	Year 3 Month 9	Year 3 Month 10	Year 3 Month 11	Year 3 Month 12
Number of install	0	0	0	0	0	0	0	0	0	0	0	0
Total remotes in operation	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
One time charge												
revenue from remote	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000
total revenue	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000
Total cost	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760

	Year 4 Month 1	Year 4 Month 2	Year 4 Month 3	Year 4 Month 4	Year 4 Month 5	Year 4 Month 6	Year 4 Month 7	Year 4 Month 8	Year 4 Month 9	Year 4 Month 10	Year 4 Month 11	Year 4 Month 12
Number of install	0	0	0	0	0	0	0	0	0	0	0	0
Total remotes in operation	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
One time charge												
Revenue from remote	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000
Total revenue	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000
Total cost	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760

	Year 5 Month 1	Year 5 Month 2	Year 5 Month 3	Year 5 Month 4	Year 5 Month 5	Year 5 Month 6	Year 5 Month 7	Year 5 Month 8	Year 5 Month 9	Year 5 Month 10	Year 5 Month 11	Year 5 Month 12
Number of install	0	0	0	0	0	0	0	0	0	0	0	0
Total remotes in operation	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
One time charge	$ -											
Revenue from remote	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000
Total revenue	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000	$ 5,000,000
Total to EMC	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760	$ 2,055,760

Unique
Capability & Facility
offered by
FXT in cooperation with EMC

FrontierX Technology LLC X

EMC Raisting Teleport

➢ **It was part of the Deutsche Telecom which was acquired by EMC in mid 2000**

➢ **It was named the fastest growing teleport in 2013 by the World Teleport Association**

➢ **This facility has been totally renovated and antennas were refurbished.**

➢ **This facility has more than 12,000 sqm of space with over 28 antennas**

➢ **Using the old Standard A antennas (32 m antennas) to be used in commercial C band setup**

Unique Characteristic of EMC Teleports

➢ **Five geographically redundant fiber access from multiple carriers**

➢ **Ideal location in central Europe surrounded by the Alps**

➢ **Coverage of the Americas, Europe, Africa, Middle East and Asia using all major satellite operators**

➢ **European landing rights for all major frequency bands**

➢ **Redundant power supply, redundant generators and redundant UPS systems**

➢ **24x7 monitoring and control**

Presented Technology
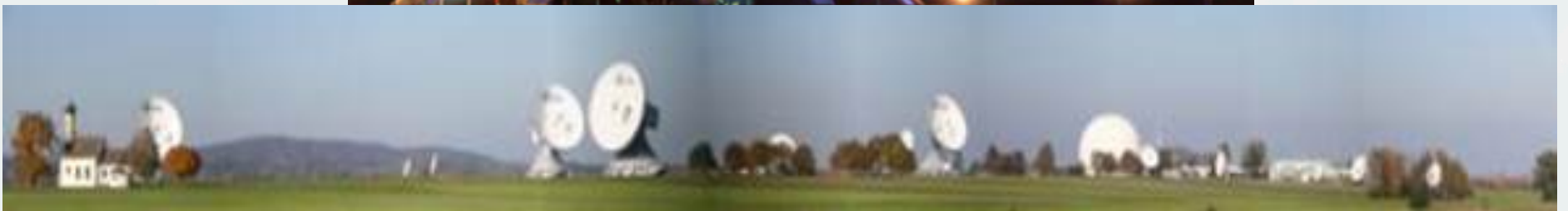
Fiber Connectivity

➢ **Integrated into Germany's fiber network, the Raisting Teleport features an onsite SDH PoP (no local loop) that is part of the German fully-redundant fiber ring structure built and managed by Deutsche Telekom.**

➢ **From the Teleport's SDH PoP an STM-16 connects to EMC's main PoP at London Telecity in the United Kingdom.**

➢ **The EMC Teleport in Redditch, UK is also incorporated into a fiber backbone ring adding the availability of Teleport redundancy to mission critical high end services.**

Location and Security

➢ **The Raisting Teleport is located in a rural agricultural location 50 kilometers south-west of Munich, Germany adjacent to the town of Raisting.**

➢ **The location is also uniquely protected by the Alps around 15 kilometers away to the south and south-east of the Teleport.**

➢ **The main Teleport building is fully-fenced with security code access at its entrance and has closed circuit video surveillance with alarmed doors on all key points including each of the four largest antennas that feature self-contained hosting space.**

FrontierX Technology LLC

Power System

➢ **The Raisting Teleport's power supply is connected to two independent 20kV medium-voltage cables. The power cables are diversely routed for redundancy purposes and then feed into the Teleport's own underground power cable ring.**

➢ **UPS system has a 3 for 1 redundancy. Since the UPS is always available at a standby readiness mode, power is constantly maintained. They are designed for a 1 hour operation.**

➢ **the diesel engine generators take over the power supply within 50 seconds. The diesel engine generator system capacity consists of eight generators that are preheated for immediate availability. The diesel fuel is stored in three tanks with 600,000 liter fuel capacity allowing for 20 days of continuous autonomous operation, if necessary.**

Presented Technology

Co-location and Hosting

- ➢ **With over 11,000 square meters of co-location and hosting space available in optional configurations that includes a choice of fully or partially customer allocated buildings and rooms, actual racks can be served via overhead cable trays or raised floors.**

- ➢ **Protection to each individual secure rack is provided via the Teleport's overall secured energy system.**

- ➢ **The grounding architecture for the co-location and hosting space complies with EU standards.**

- ➢ **Additionally, secure bomb proof hosting space is available for very high level disaster resilient requirements.**

- ➢ **For larger equipment hosting and delivery a loading and receiving dock is located at the rear of the main Teleport building.**

How it is unique to the E-sat

➢ **One the most important features of E-sat is take advantage of satellite power in providing uniform distribution of material to multiple locations.**

➢ **Using the Raisting facility will grant distribution and access to Americas, Europe Africa, Middle East, South east Asia from a central location.**

➢ **FXT Next generation of Broadband access is based on a cloud based solution for virtualization of the access and content delivery based on private and public clouds.**

Thank you for your kind attention