

# FrontierX Technology LLC

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**“E-SAT PLATFORM”**

**Presented by**



**FrontierX Technology LLC X**



FutureX Technology LLC

*Prepared by*



**FrontierX Technology LLC X**

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for  
United Nations Technology Bank*

*January 2018*

***Confidential***



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# *Typical Receiving Station*



# *Executive Summary*



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*Advancement of technology and specifically the affordability of it have been providing exciting opportunities to close the gap between underdeveloped and developed countries like no other time. In the last few years the importance of socio-economic development to solve global issues has been on the top of any list of major organization involved in global affairs.*

## *Executive Summary cont. 2*



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*Infrastructure building is the most critical, time consuming and costly section of each development plan. There are great arguments on the role and impact of communication infrastructure in 21<sup>st</sup> century. Arguments and studies have been made to calculate the contribution of communication infrastructure and its effectiveness to shift the economies of underdeveloped countries to leap into **knowledge based** economies and leaving*

# *Executive Summary cont. 3*



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*behind the agriculture and manufacturing centric proposals.*

*We are offering voice & data solutions to build an infrastructure of 21<sup>st</sup> century for the transformation of the prospect of development. This infrastructure will have several key attributes which will make the impact of its deployment beyond traditional means.*



## *Executive Summary cont. 4*

*This proposal is based on a solution to be:*

- Deployable in regional and continental setting*
- Independent from existing infrastructure*
- Expandable and Modular architecture*
- Single platform to address multiple segments of economy*
- Rapid deployment and rollout*

# *Executive Summary cont. 5*



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- Low cost of operation Sustainable to absorb*
- new technology advancements*

*There are very important and proven segments of economy that can benefit and grow by using this platform. These segments of economy effect the growth and sustainability of each country and region.*

# *Executive Summary cont. 6*



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*Following are the top candidates for this platform:*

## ● ***Education***

- *Uniform and content rich delivery system to each and every primary *and* secondary school*
- *Access to latest research, material and articles at university and research centers*

## *Executive Summary cont. 7*



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- *Collaboration of developed nations universities with Universities and students of region*
- *Universal live and recorded educational material to address shortage of qualified providers*
- *Continuous Education of teachers and educational staff to provide a minimum quality of providers to students*

# Executive Summary cont. 8



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## ● Healthcare

- Accessibility of healthcare records and Insurance data for every Hospital, clinic and center
- Distribution of instructions and updates to address health risk epidemics  
Telemedicine to share the sophisticated and specialized resources with underserved clinics and locations

# *Executive Summary cont. 9*



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- Access to depository and archives of journals , handbooks and research material
- **Government**
  - Reliable and expandable e-Governance platform
  - Emergency and Security management
  - Revenue generation opportunities such as customs and sales tax
  - Universal Service Offering

# *Executive Summary cont. 10*



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## ● *Finance*

- *Connect all the banks and financial institutions*
- *Provide financial products to wider range of population as part of financial inclusion growth policies*
- *Enabler of Cashless economy*



## *Executive Summary cont. 11*

*This solution could be deployed in few short months and could expand beyond one country and one region. Flexibility and multidimensional perspective would allow to tailor make the solution for each situation independently. There could be many scenarios' that the platform could cross serve multiple of solutions on the same location.*



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# FOREWORD

- *Microsoft mogul Bill Gates, has a dream to end poverty – and that vision starts with a chicken. "Livestock is really something quite amazing to help lift people out of poverty," Gates told PEOPLE at the event. "If you give a family a starting kit, which is a chicken .....". Ref. WSJ, June, 2016*
- *United Nations conducted a study for Secretary General as feasibility study (cited in this presentation) to improve the lives of least developed countries with similar argument, with "knowledge" as the starting kit, Ref. pages 7 & 9 of this report*
- *The tool to establish the **Knowledge-Based Economic Development**, is the premise of this report.*  
**E-Sat Platform**



# CONCEPT

## *Starting with the Following Philosophy*

- *one-year goal plant wheat,*
- *ten-years goal plant trees,*
- *hundred-years goal educate (plant knowledge), with*
  - *Welfare Benefits (food, housing, income, etc.)*
  - *National Security*

# ***REGION OF STUDY***

## ***Africa as Emerging Market***



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- *Potential growth more than anywhere else!*
  - *Land*
  - *Population*
  - *Economics*
- *Africa is bigger than all of the developed countries*
- *Less than 9% of African population are aging*
- *U.S. companies are cutting back in telecoms (more on this)*
- *China has expanded its programs for development of infrastructures*

# AFRICA MAP



## The True Size of Africa

A small contribution in the fight against rampant *Immappancy*, by Kai Krause

Graphic layout for visualization only ( some countries are cut and rotated )  
But the conclusions are very accurate: refer to table below for exact data

COUNTRY	AREA x 1000 km <sup>2</sup>
China	9.597
USA	9.629
India	3.287
Mexico	1.964
Peru	1.285
France	633
Spain	506
Papua New Guinea	462
Sweden	441
Japan	378
Germany	357
Norway	324
Italy	301
New Zealand	270
United Kingdom	243
Nepal	147
Bangladesh	144
Greece	132
<b>TOTAL</b>	<b>30.102</b>
<b>AFRICA</b>	<b>30.221</b>



## Top 100 Countries

Area in square kilometers, Percentage of World Total  
Sources: Britannica, Wikipedia, Almanac 2010



In addition to the well known social issues of *illiteracy* and *innumeracy*, there also should be such a concept as "*immappancy*", meaning *insufficient geographical knowledge*.

A survey with random American schoolkids let them guess the population and land area of their country. Not entirely unexpected, but still rather unsettling, the majority chose "1-2 billion" and "largest in the world", respectively.

Even with Asian and European college students, geographical estimates were often off by factors of 2-3. This is partly due to the highly distorted nature of the predominantly used mapping projections (such as *Mercator*).

A particularly extreme example is the worldwide misjudgement of the true size of *Africa*. This single image tries to embody the massive scale, which is larger than the *USA*, *China*, *India*, *Japan* and *all of Europe*.....combined!



# CONSTRAINTS IN AFRICA

- *Low level of infrastructure*
  - *Electricity*
  - *Fiber optics*
  - *Water supply*
  - *Education*
  - *Roads and Manufacturing*
- *Threat of On-site working*
  - *Low level of hygiene*
  - *Financial risk*
  - *Safety issue*
- **Solution:**
  - *Self-sustaining tele-education and tele-working packages*

# ***RISING NEEDS***

## ***Background***



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*Science today is a global enterprise involving some 7 million researchers drawing upon a worldwide research and development (R&D) spending of over one Trillion US Dollars and publishing their findings in some 25,000 specialized journals per year.*

***UNESCO's remark: "By contrast, the group of least developed countries still plays a marginal role."***

***Left unaddressed, this striking STI disparity could leave LDCs at the margin of the global economy.***

***E-Sat Platform rapidly builds up national capacities, eradicating widespread poverty and removing structural constraints and unleashing sustained growth and development.***

# RECOGNITION OF THE RISING NEEDS



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## A DECADE AGO

*Rwandan President Paul Kagame, in addressing the Royal Society of the United Kingdom, offered a sobering assessment which applies across all 48 Least Developed Countries (LDCs) today: “We must either begin to build our scientific and technological training networking capabilities or remain an impoverished appendage to the global economy.”*

*Economic history tells us that science, technology and innovation (STI) are fundamental drivers of sustained economic growth and sustainable development.*

***This is the knowledge-based economic development.***

# **FEASIBILITY STUDY**

## **United Nations Technology Bank**



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*This study was prepared for the Developing Countries under the overall supervision of the Chair of the Secretary-General's High-level Panel on the UN Technology Bank, Ref. UN report "Feasibility Study for United Nations Technology Bank for the Least Developed Countries".*

### **Objective**

*Improving lives with knowledge-based economy*

***The UN Feasibility Study shows the needs***

***E-Sat Platform is the tool addressing the needs***

# **SOLUTION TO THE RISING NEEDS FOR THE KNOWLEDGE-BASED ECONOMY**



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*Dedicated and coordinated actions by **E-Sat Platform** Is the tool that builds on and scaling up ongoing initiatives, will help initiate in LDCs beneficially into the mainstream world economy and the international trading, financial and technological systems.*

***E-Sat Platform** is the kit that rapidly builds up national capacities and removing structural constraints and unleashing sustained growth and development.*

# ***PROPOSED PROJECT*** ***E-Sat Platform***



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## ***E-Sat Platform for Learning, Library and Public Health***

***GOAL***

***KNOWLEDGE-BASED ECONOMY***

# ***PRESENTING***



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***The FrontierX Technology LLC addressing  
the future***

***by Presenting***

***E-Sat Platform for Learning, Library and  
Public Health***





# **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.*
- *Countries are establishing **Ministry of Future**, such as: Sweden, Finland, UAE, and in Saudi Arabia something similar: Knowledge-Based Economy.*



# 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.*



# 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.*

## ➤ **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.*

## ➤ **E-Sat Public Health**

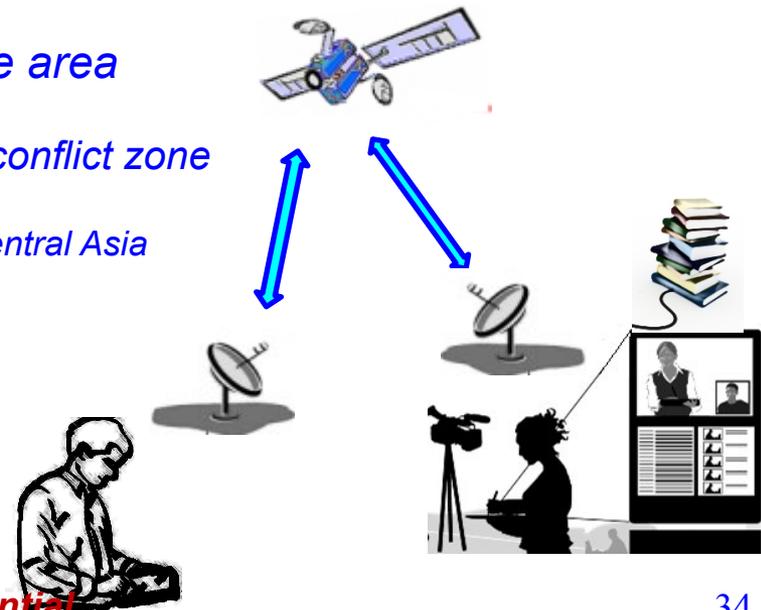
*It aims to harness advances in science and technology to deliver integrated public health solutions and save lives around the globe specially developing countries at anytime with high reliability and privacy.*

# E-SAT LEARNING vs. E-LEARNING



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- *Dedicated in-class training via satellite channel*
  - Data
  - Voice
  - Video
- *Adaptive off-class learning experience via satellite cloud 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

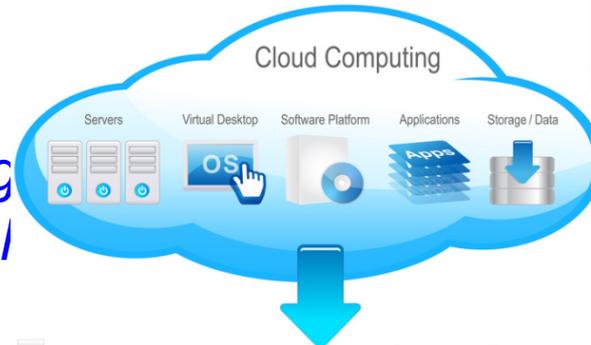
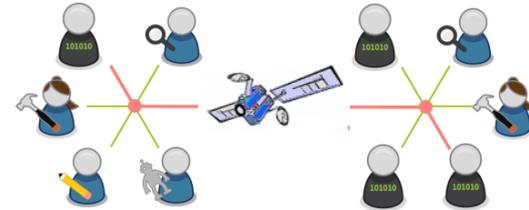


# E-SAT LEARNING CORE FOR LEARNING



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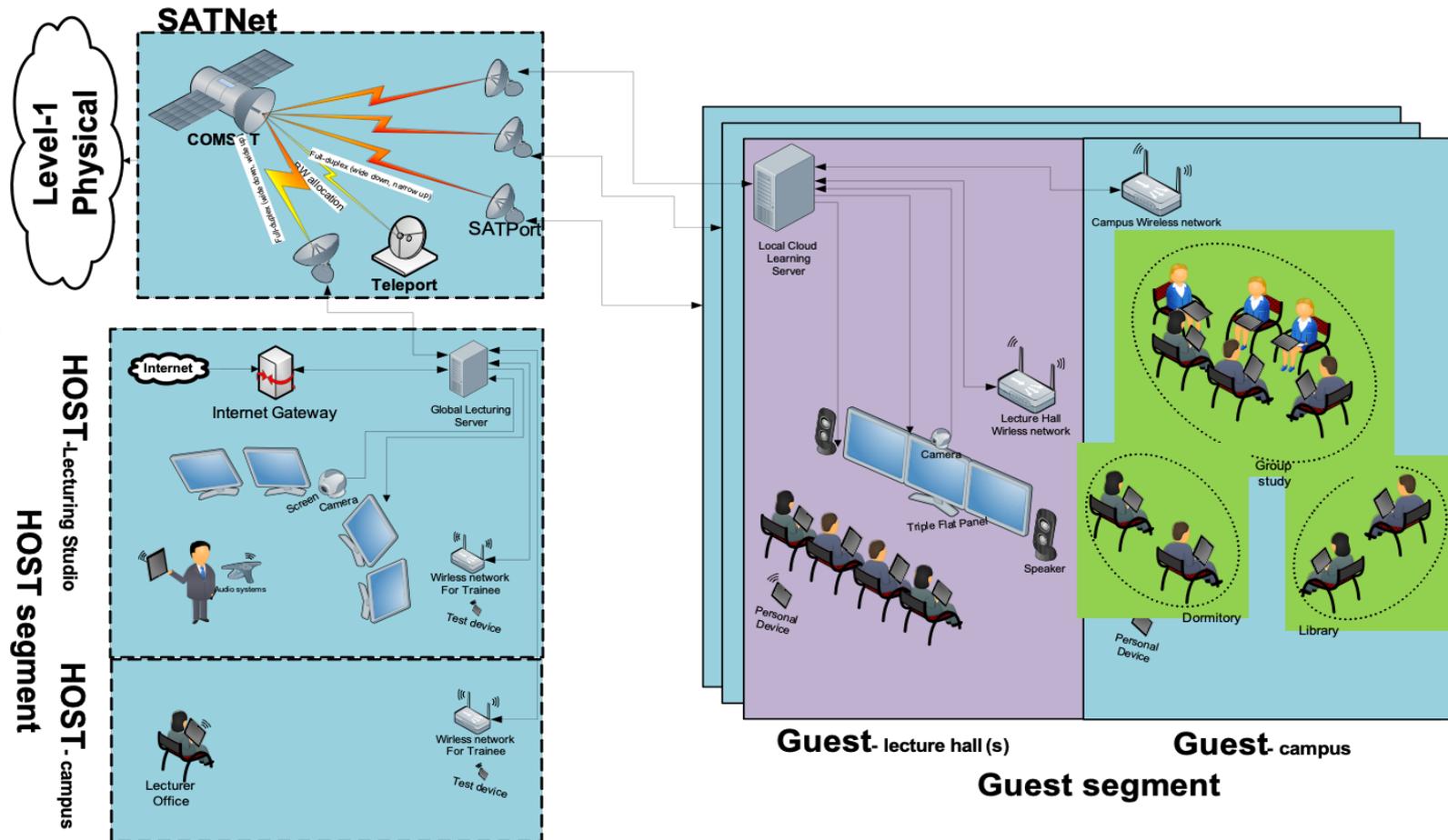
- Mass education+ personalized learning
- Lectures  $\longrightarrow$  Self-mastery  $\longrightarrow$  Interactive tutoring
- Developing Skills for
  - Problem solving ability
  - Creativity
  - Cross-cultural teamwork
- Integrated new tools:
  - E-learning
  - M-learning
  - Cloud storage
  - Cloud computing
- Content and material
  - Open-source
  - Copyrighted



# E-SAT PLATFORM HARDWARE ARCHITECTURE



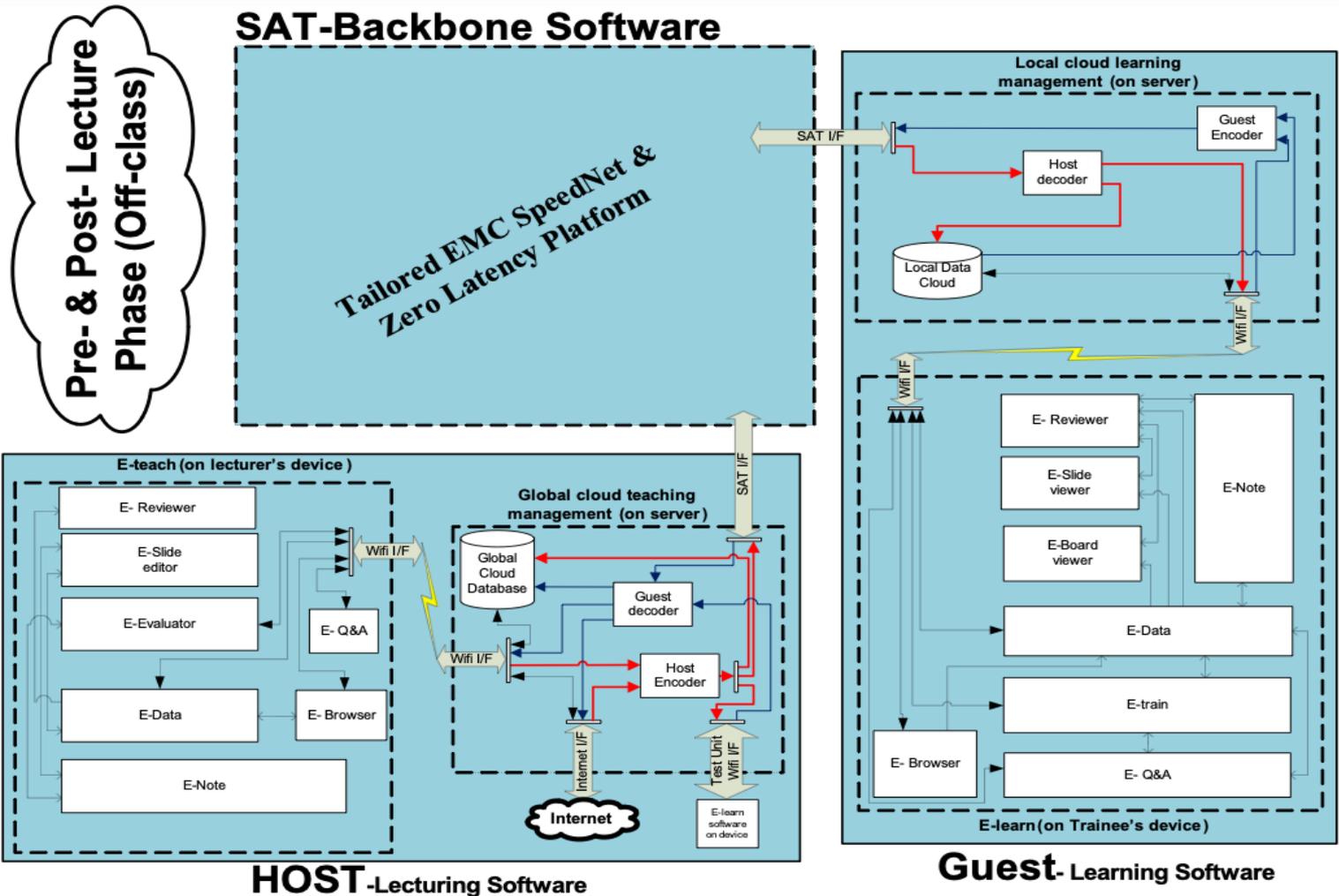
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# E-SAT PLATFORM SOFTWARE ARCHITECTURE



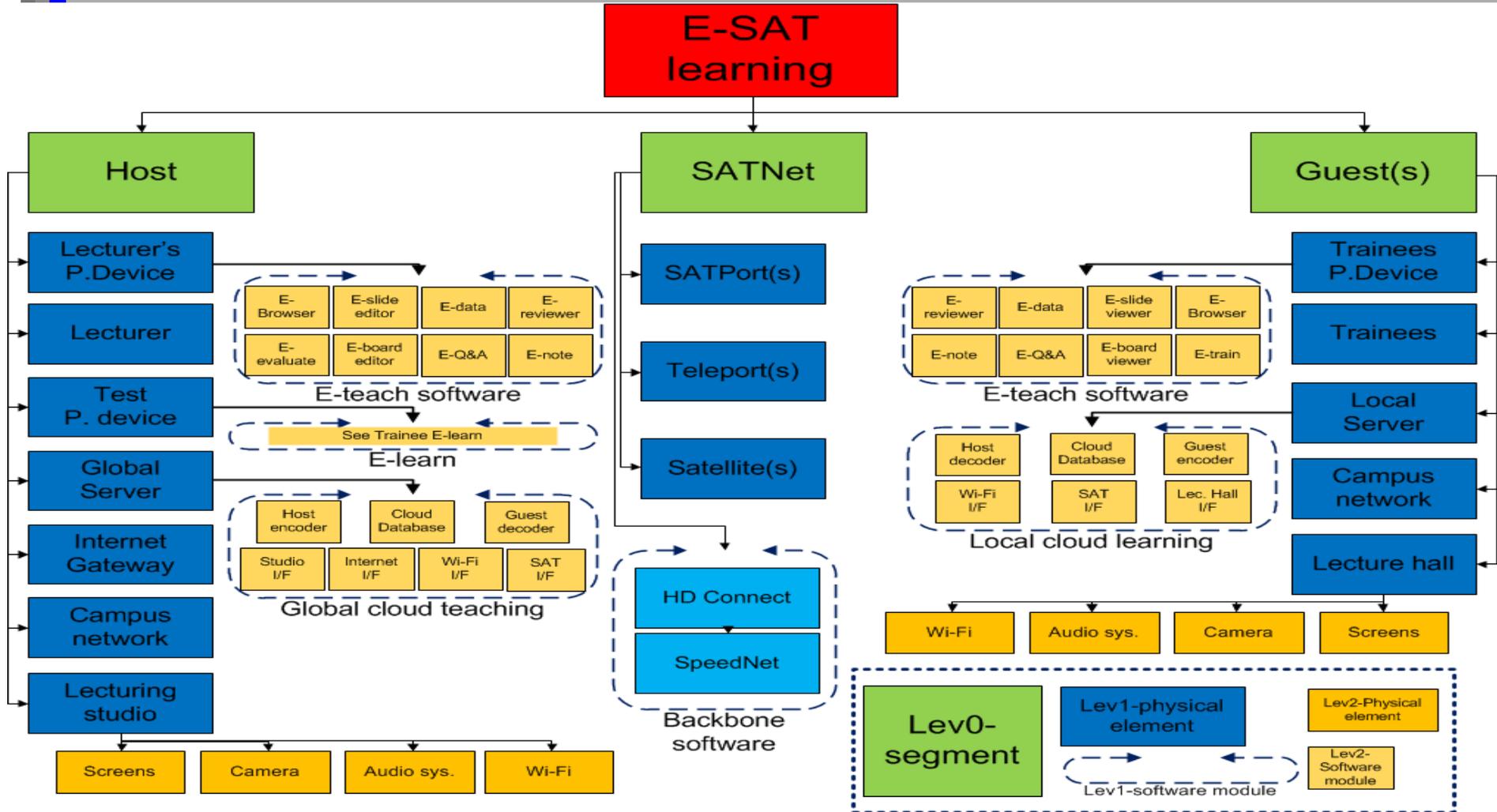
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# E-SAT PLATFORM PRODUCT TREE



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# ***E-SAT PLATFORM***

## ***More than Teaching Tools***



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### ***[?] Health-care***

- Consulting system*
- Training system*
- Treatment for patients*

### ***[?] Multi national corporation:***

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

### ***[?] News and Entertainment enterprise***

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





# OBJECTIVES

- *Good education has always been available at substantial cost to a few with substantial resources and funds.*
- *Education Technology is 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 comprehensible at affordable cost.*
- *Improving **Learning Management System (LMS)** and **Knowledge-Based Economy (KBE)** are just statements without the tool on how to accomplish the objectives. **We now offer the tool: E-Sat Platform for Learning.***



# PROBLEMS

- *Lack of schooling infrastructure for a quality education,*
- *Lack of material to learn with sufficient textbooks and reading materials,*
- *Existing material is outdated and unreliable,*
- *Shortage of teachers with academic qualifications,*
- *Mixing genders and cultural issues.*



## **SOLUTION**

### **E-SAT PLATFORM**

- *Interconnect and automate schools that will help the community as a whole,*
- *Provide a standard TV network for education to support teachers and students,*
- *Provide up to date digital material accessible in all schools in a fast and reliable way for students,*
- *Provide a learning system to help teachers with delivery and to monitor in real time how students learn,*
- *Provide a tangible solution that justifies Government financing.*

# ***WHY THE NEED FOR E-LEARNING E-SAT PLATFORM***



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- *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.*



# ***WHY E-SAT 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.**



# EDUCATION MODULES

*E-sat Platform is customized to specific objectives. Each module can work together or independently to create desired value. Specific objectives are achieved by utilizing the module Architecture of standard Educational platform.*

- *EduTV Live: Broadcasted  
Live TV channels*
- *EduCDN: Educational  
Content Delivery Network*
- *E-Library  
Video On Demand Library*
- *SpeedNet Zero Latency  
Gateway*
- *School Management  
System + Cloud*
- *Continuous Learning  
Evaluation System.*



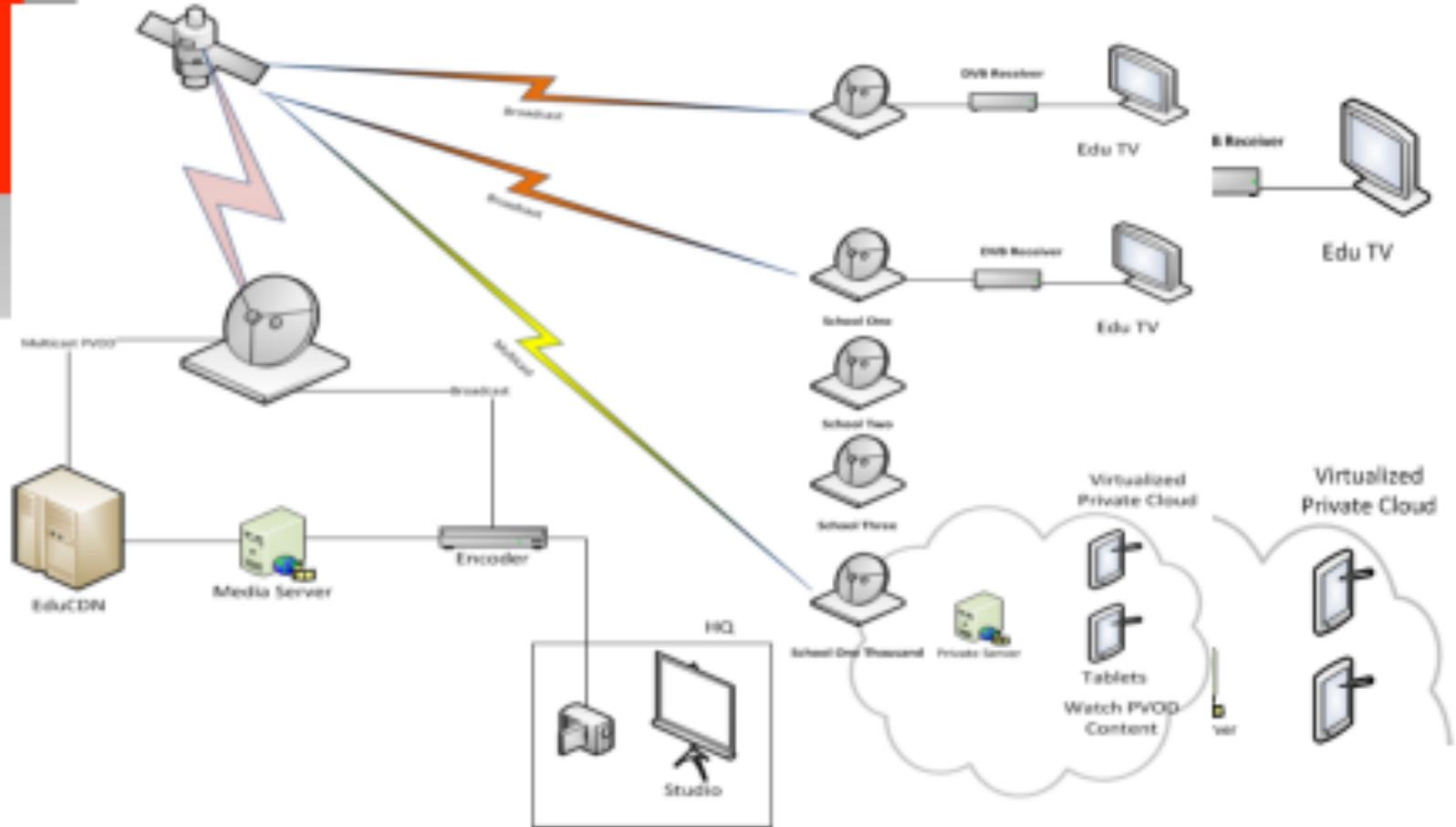
# *EducaTV Live and IPTV*

## *What is EduTV?*

- *EduTV is a broadcast network for Educational Content*
- *EduTV can be setup as broadcast or streaming as IPTV.*
- *E-Sat Platform provides the studio and facilities to prepare instructional broadcast of educational content.*
- *E-Sat supplied equipment includes high quality devices for encoding videos and broadcasting signals.*
- *Capacity to have multiple educational channels.*



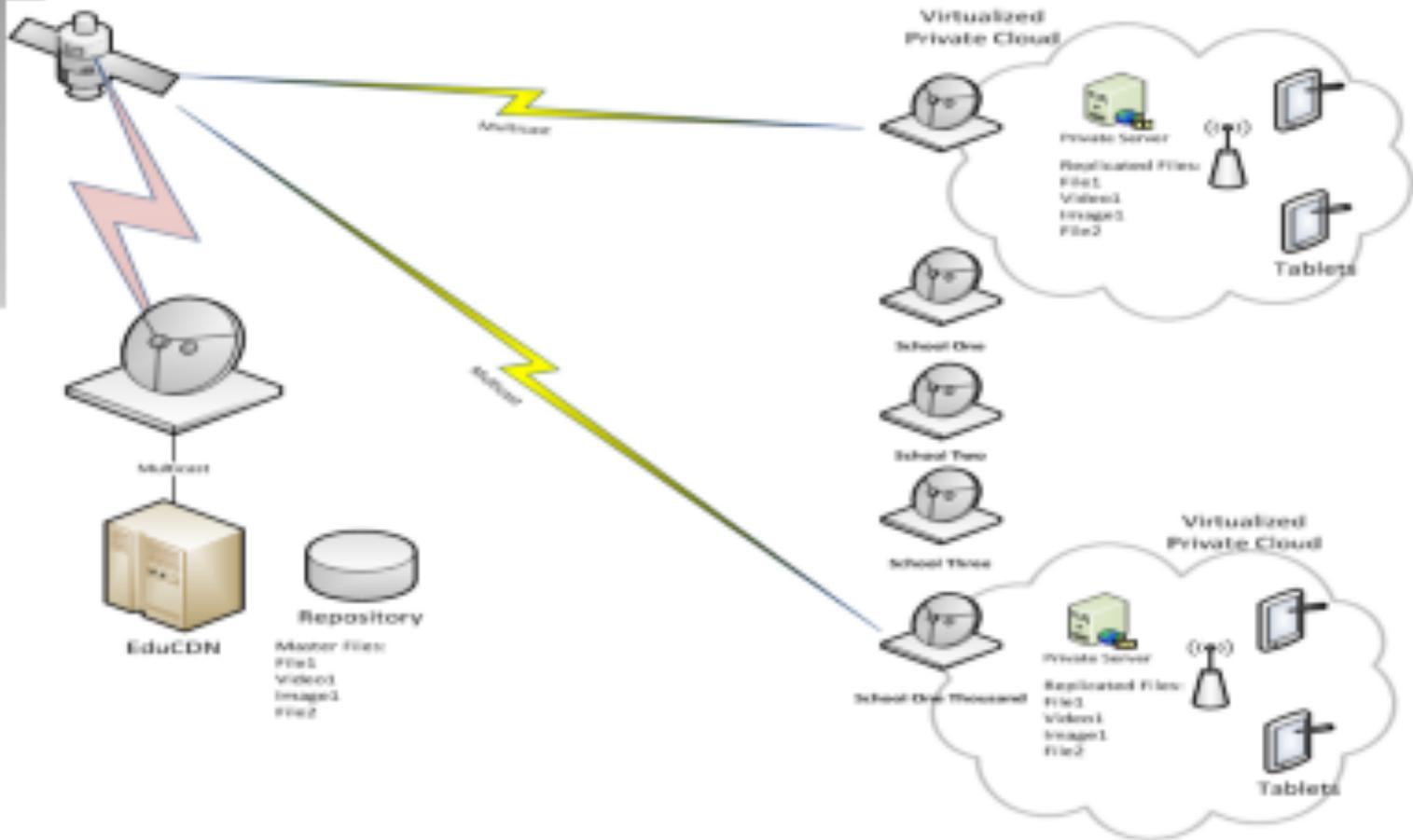
# EduTV ARCHITECTURE



# EduCDN ARCHITECTURE



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## ***What is E- Library?***

- ***E-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 E-library Private Cloud provides users interfaces for different portals or tablets.*
- *Organization is by Level and subject to enable students to find exactly what they are looking for.*
- *E-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 E-Library dedicated to playing recorded learning sessions, viewable anytime using EMC's DVB-S Receivers.*

# **EDUCATIONAL CONTENT DELIVERY NETWORK** *(EduTV CDN)*



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- *EduCDN streams memory-heavy content (videos and books) to 100 or 100,000 remote sites at the same time.*
- *E-Sat's unique protocol synchronizes all contents from the Private Clouds efficiently and simultaneously.*
- *EduCDN is specially designed for Educational institutions that need content replicated quickly and efficiently.*
- *Customization is easily configured and can be categorized based on educational level or age group.*
- *Constant monitoring of the network health of each site, finding errors and sending alerts in case of abnormal behavior.*

# **SPEEDNET ZERO LATENCY PUBLIC CLOUD NETWORK**



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*Internet access accelerates and enhances the learning experience. E-Sat's goal bring the same opportunities globally despite remote locations which are impacted by high latency.*

- *E-Sat's Zero Latency Public Cloud Network virtualizes the content of the most requested websites and sends it to schools in advance, allowing for speedier access to commonly used internet sites and the schools 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.*



# **EDUCATION MODULES**

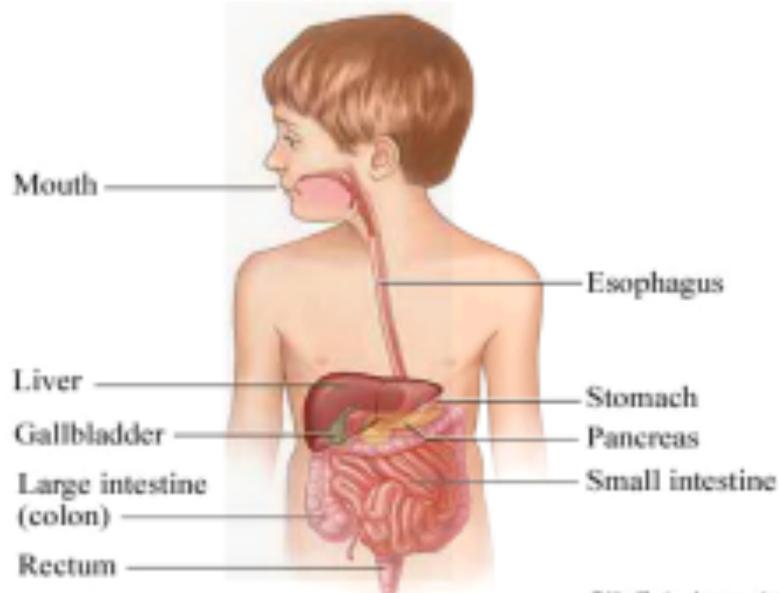
*It is customized to specific objectives. Each module can work together or independently to create desired value. Specific objectives are achieved by utilizing the Modular Architecture of the standard Educational platform.*

- *EduTV Live: Broadcasted Live TV channels,*
- *EduCDN: Educational Content Delivery Network,*
- *E-Library & Video On Demand Library,*
- *SpeedNet Zero Latency Gateway,*
- *School Management System + Cloud Reporting,*
- *Continuous Learning Evaluation System.*



# LEARNING SYSTEM SAMPLE

## Child's Digestive System



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

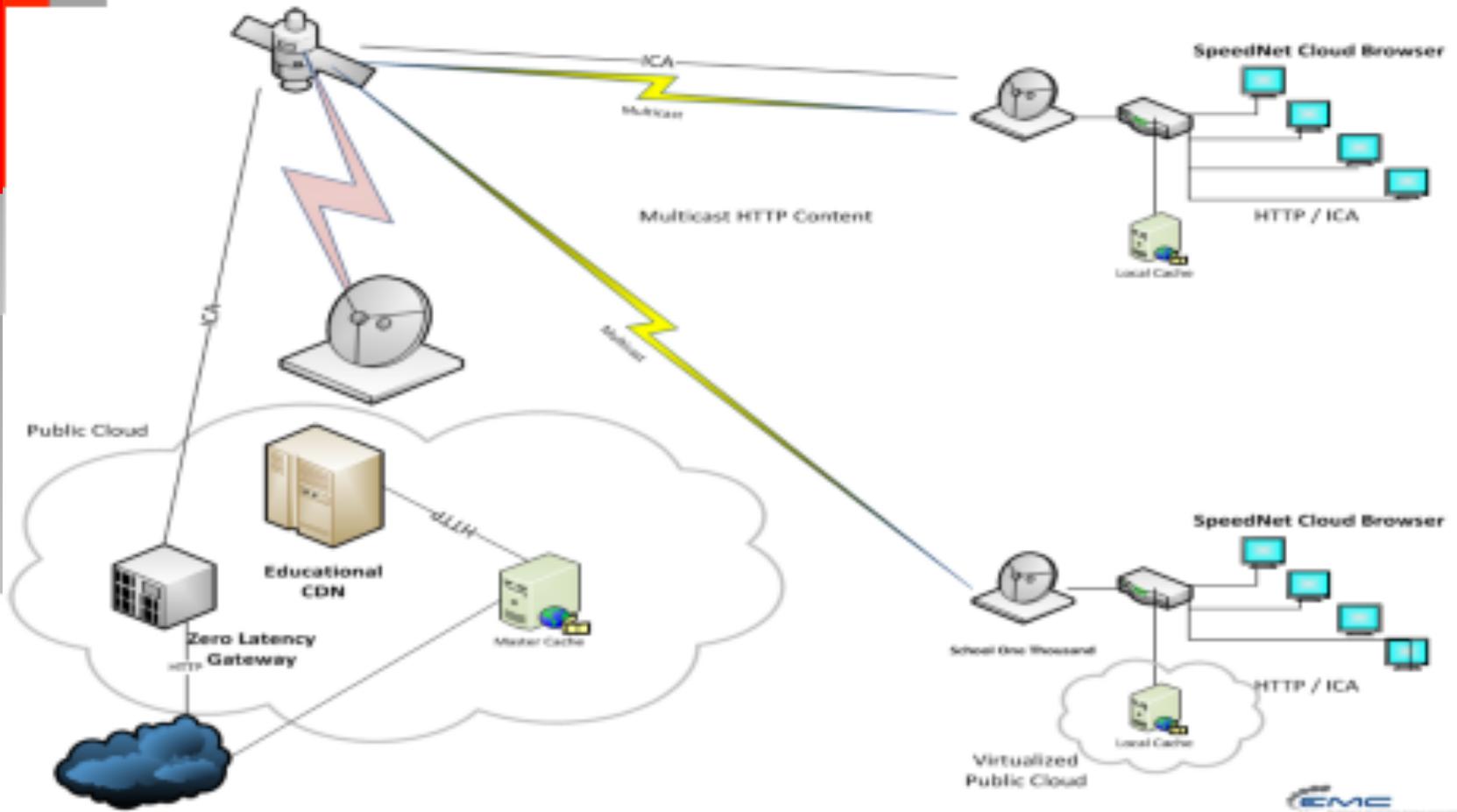
### No, Try Again

*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.*

# SPEEDNET ARCHITECTURE



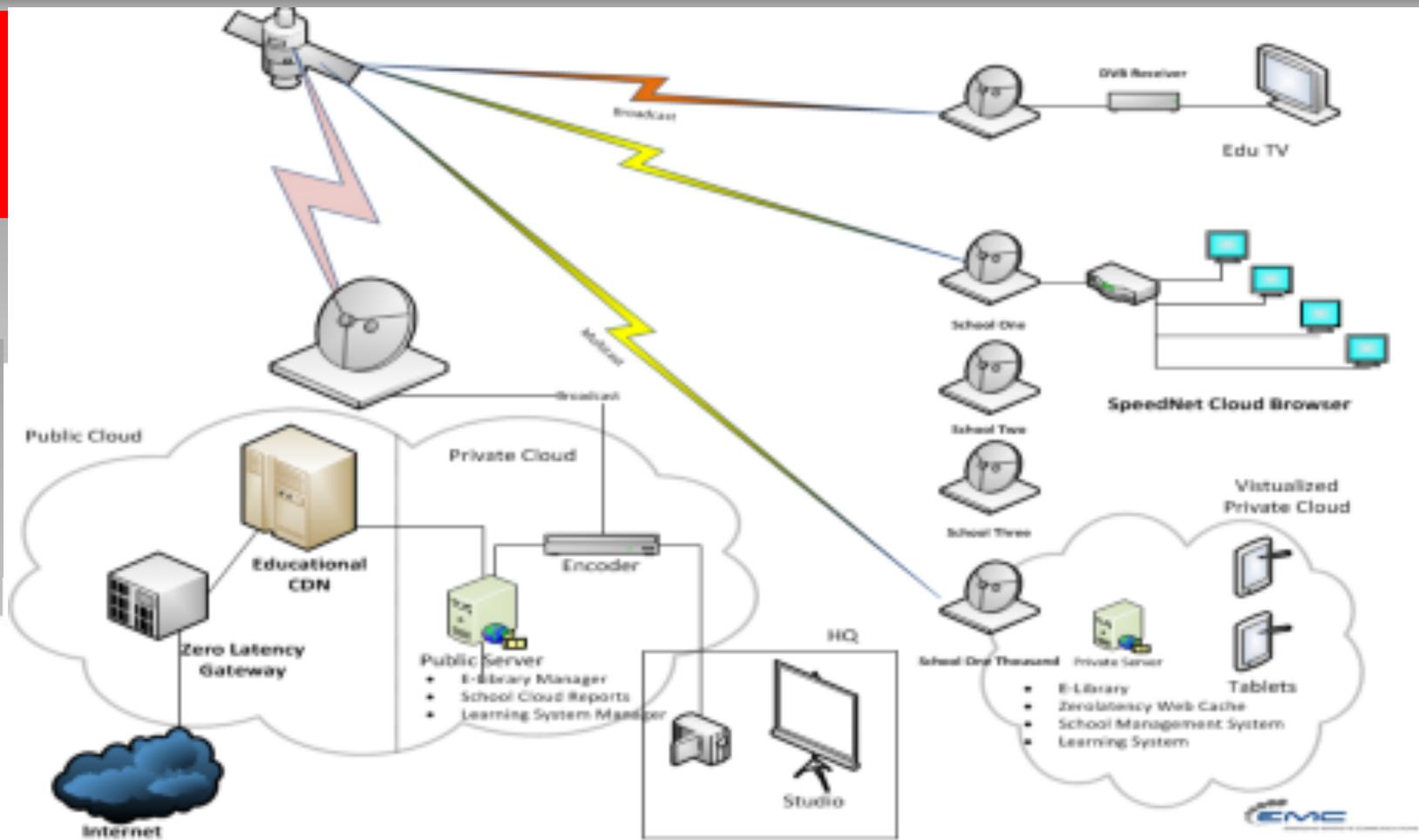
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# COMPLETE ARCHITECTURE



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# CONTINUOUS LEARNING EVALUATION SYSTEM



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## STUDENTS

- ❖ *Each student has a tablet with special interactive software that provides materials to help students learn at their own pace.*
- ❖ *After viewing multimedia material, students take an evaluation that gives instant corrections. Incorrect answers are presented again with supplemental information to help the student understand.*
- ❖ *At the end of each period, the student receives a final evaluation.*

## TEACHERS

- ❖ *Teachers have a tablet programmed to monitor what each student is doing so that they can help complete the learning process.*

## REPORTS

- ❖ *A report is provided to both the student and teacher to identify problem areas.*
- ❖ *A report is also generated for the school and Education Bureau for quality improvements and learning recommendations.*

# *How the Continuous Learning Evaluation System Works*



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- ❖ 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, webpages, books, or interactive applications) are sent to all Private Cloud in each school.*
- ❖ Teachers provide feedback to HQ before deploying the 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.*

# ***WHY THIS EDUCATION SOLUTION IS DIFFERENT FROM STANDARD E-LEARNING***



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*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 tool,*
- Uniform Distribution Standard sharing among all users.*

# WHY THE NEED FOR E-LEARNING



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- *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.*

# **MODULARIZED EDUCATION SOLUTION**

## **A Complete Solution for Education**



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## **Problems**

- *Lack of schooling infrastructure for a quality education,*
- *Lack of material to learn with sufficient learning material,*
- *Existing material is outdated and unreliable,*
- *Teacher & expert shortage with academic qualifications.*

# PROPOSAL

## Items to focus on as the objectives



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- *This proposal is the tool for partnership with organizations worldwide promoting collaboration and innovation to tackle critical problems, market development and resource management in a wide variety of subjects. This entity is the tool on HOW to implement rather than WHAT to implement that maintains the recipient's knowledge up-to-date.*
- *It is utilized to bring education & knowledge to help the recipients develop Knowledge-Based Economy and to improve implementation process at all levels and particularly keeping the workforce relevant & up-to-date.*
- *It aims to harness advances in science and technology to deliver integrated public solutions, especially developing countries at any time with high reliability and privacy.*



# CONCLUSION

## TOMORROW IS TODAY

### E-SAT PLATFORM

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



# INITIAL STEPS



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## TO ESTABLISH E-Sat PLATFORM

- Adoption of the “concept” by the FU Board of Directors,
- Formation of a company **FrontierX Technology LLC** (or similar name) in a business friendly developed country with initial product **E-Sat Platform**,
- Sufficient initial capital,
- Establishing subsidiary or branch offices in the region required, based on the business requirements,
- Hiring an experienced Executive with specific hands on knowledge of Africa/Middle.

# VISION BEYOND



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***E-Sat Platform (Learning) will provide reliable state of art end to end services worldwide to improve quality of life particularly in remote areas.***

***E-Sat Platform is currently being evaluated by two countries to deploy and to commission for operation that will use the existing infrastructure such as; space segment allocation, proven infrastructure and user-friendly interfaces.***





# **VISION BEYOND – cont.**

## **E-Sat University**

*The future of academic institution with one million plus enrollment to implement the concept of Education without Borders :*

- *Instruction by leading scientist and expert,*
- *Reachable to remote areas with diversity to over-come physical, cultural and gender dilemma.*



# VISION BEYOND – cont.

## DISCUSSION OF PROPOSED CONCEPT WITH INTERESTED INSTITUTIONS



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- *Bill & Melinda Gates Foundation in communications with: Mr. Jim Bromley, CFO and Christopher Elias, President of Global Development. Although extremely interested, their current goals are in healthcare through vaccinations, disease prevention, etc. and this proposal was too high-tech focused and in development of a new concept not an addendum to their current activities.*
- *Saudi Technology Development and Investment Company (TAQNIA), through my former student & friend Prince Dr. Turki bin Saud bin Mohammad Al-Saud (currently President of KACST). Privately, it was stated to me that frankly Saudis are may not interested to initiate a new entity.*
- *Alibaba Group Holding Ltd., Mr. Jack Ma*
- *Space Exploration Technology Corp. – better known as SpaceX, Mr. Elon Musk, CEO. They are interested getting into satellite service markets.*
- *Volkswagen AG, Prof. Dr. Horst Neumann, VP. Providing technical & educational service to all their distributorship around the World.*

# *E-Sat Platform for Learning, Library and Public Health*



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*Thank you for your kind attention*

